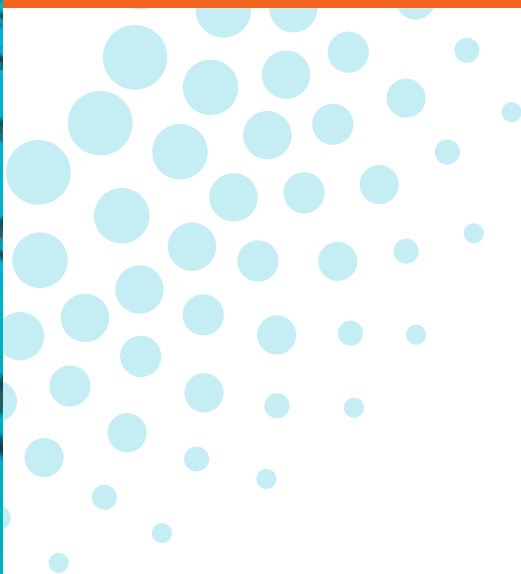
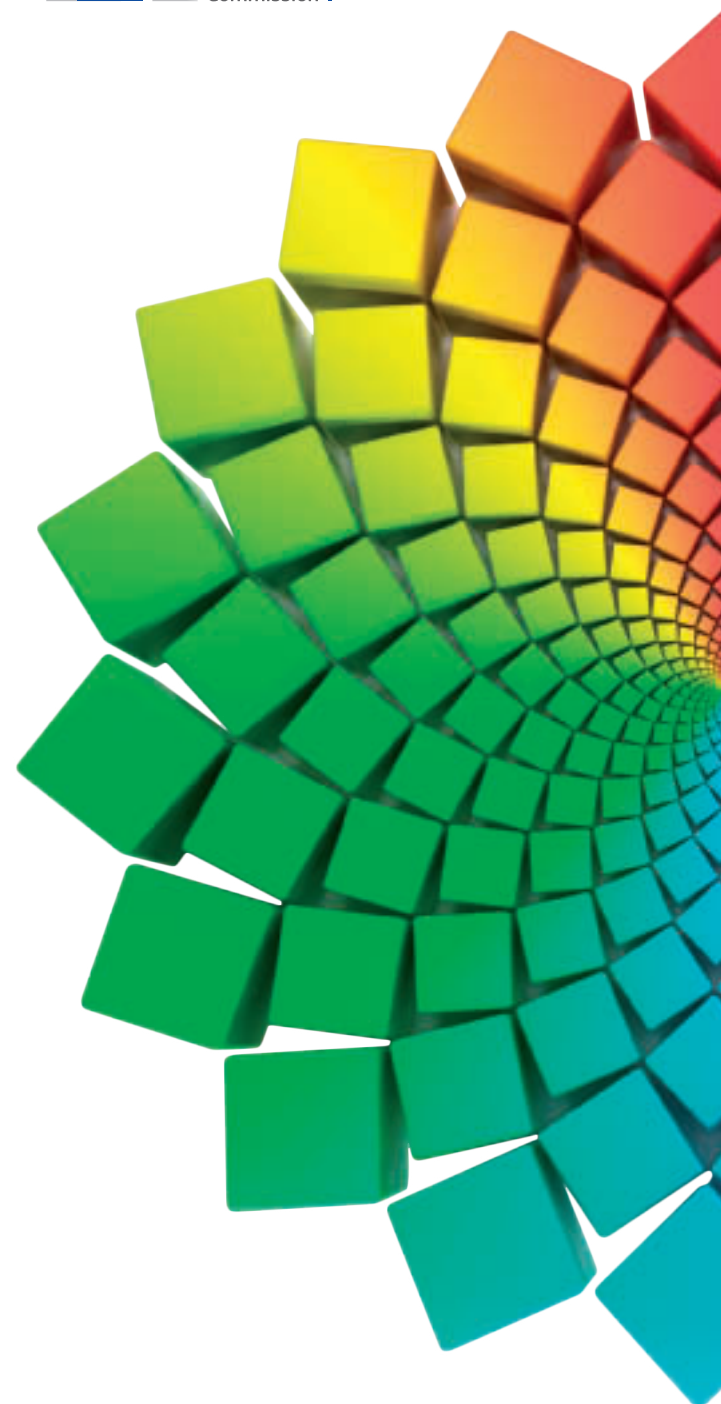


Annual Report on the ERC activities and achievements in 2011

Prepared under the authority of the
ERC Scientific Council





EUROPEAN COMMISSION

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ERC EA — The European Research Council Executive Agency
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European Commission, ERC Executive Agency





EUROPEAN COMMISSION

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ERC
European Research Council



European Research Council

2012



Annual Report 2011 3



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Commissioner's Introduction

It is my pleasure to introduce this year again the Annual Report on the activities and achievements of the European Research Council (ERC). The ERC has the mission to promote and advance progress in all fields of science, engineering and humanities and is leading Europe's efforts to achieve excellence in frontier research. Investments in frontier science and technology are not inputs to short-term incremental innovations. They are investments in the future of Europe. They can drive productivity growth, improve social prosperity and create new and better jobs that will allow Europeans to lead in the global economy.

ERC-supported discoveries are already contributing to Europe's knowledge base and providing valuable insights into the nature of the complex socio-economical challenges that Europe is facing. ERC-funded research is developing, for example, a low cost, non-invasive diagnostic method for breast and other types of cancer based on breath testing. But ERC-funded scientists are also working on better understanding how forests can help lessen the effects of global warming, by bringing together advanced models and data from the life and earth sciences; or on microscopic chemical robots that could both deliver medicines in the human body and help neutralise toxic pills.

The European Commission's proposals for Horizon 2020 – the new funding programme for research and innovation that was presented at the end of 2011 – is structured around three distinct, but mutually reinforcing blocks, in line with Europe 2020 priorities and in support of the Innovation Union.

The first block, 'Excellence in the science base', will strengthen the EU's excellence in science particularly through a significant reinforcement of the spectacularly successful ERC and its actions supporting frontier research.

The second block 'Creating industrial leadership and competitive frameworks' will support business research and innovation by increasing investment in enabling and industrial technologies and supporting innovation in SMEs with high growth potential.

The third block 'Tackling societal challenges' will respond directly to challenges identified in Europe 2020: health, demographic change and well-being, food security and the bio-based economy, energy, transport, supply of raw materials, resource efficiency and climate action, inclusive, innovative and secure societies.

Horizon 2020 will strike the right balance between fundamental and applied research, and between a top-down approach, where goals are fixed in advance, and a bottom-up approach where research themes are not pre-determined.

The ERC and its Scientific Council, that represents the European scientific community, will have a strong role in determining the avenues of research to be followed, in particular under the 'Excellence in the science base' part of the programme where the funding modes are science-driven and largely bottom-up and investigator-initiated.

Excellent research is the foundation on which the Innovation Union and our push for growth and better jobs are based. Excellence will always be the main criterion for funding under Horizon 2020. And Excellence is certainly something that we must continue to nurture in Europe's research and science base. I count on the ERC to help us doing that.

Maire Geoghegan-Quinn
*European Commissioner for Research,
Innovation and Science*





Personal message from the ERC President

2011 has been an exciting year. Never before has the ERC funded so many projects in one year: 776. In total, the ERC supports more than 2,500 excellent scientists and scholars from all over the world to carry out their research in Europe. Meanwhile, the ERC's evaluation procedure is widely accepted as the gold standard in finding and funding the best researchers from all over the world. European universities and research institutions have begun to use their ERC grants as a highly visible and smart benchmark system for comparison.

2011 has also been a year of great achievements for the ERC Scientific Council. In February, we welcomed seven new members in our midst, due to a regular, partial re-composition of the governing body of the ERC. As usual, the new members, all distinguished scientists and scholars, were carefully selected by an independent identification committee. At the same time, I would also like to warmly thank those members who retired from the Scientific Council at the end of 2010.

Following the 2009 mid-term report a Task Force, led by DG Research and Innovation Director General Robert-Jan Smits, was set up in 2011 to analyse the current situation and come up with recommendations for a more robust governance structure of the ERC for Horizon 2020, the next common strategic framework for investment in research and innovation. The results of the Task Force are a major step towards a better governance of the ERC and promise to further cut red tape. In November, when the Commission's proposal for Horizon 2020 was presented, we learned of the substantial increase of the ERC's multiannual budget. This is a strong confirmation of the achievements of the ERC since its inception five years ago, and it is also the right move to further strengthen frontier research at the European level.

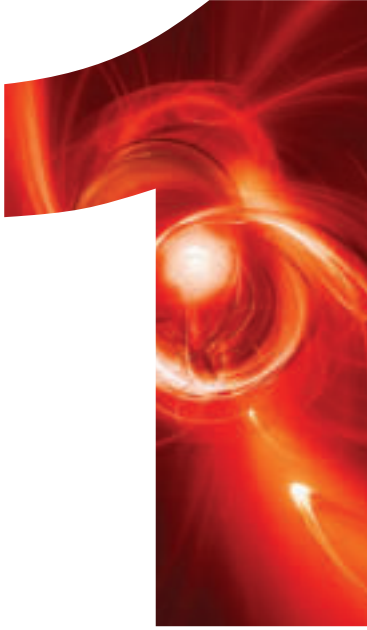
In September 2011 we welcomed the new Secretary General, Prof Donald Dingwell, a volcanologist from Ludwig-Maximilian University, Munich. 2011 is also the year with a new Director (ad interim) of the ERC Executive Agency. From the beginning of this year, Pablo Amor has steered the still growing administrative body of the ERC in safe waters.

This ERC Annual Report provides a glimpse into the main achievements of the ERC in 2011. Evaluation and granting procedures prove to run smoothly. However, the ERC is a learning institution and the Scientific Council strongly believes that the intellectual base for creative, excellent work in Europe is far from being exhausted. Therefore, we introduced the "Proof of Concept" scheme in 2011, which provides additional seed money for ERC grantees to aid the transition from the first steps towards the eventual commercialisation of their research results. And in 2012, we will run the Synergy Grant for the first time. This is a new granting scheme specifically addressing small groups of exceptional researchers who aim to carry out an ambitious research project with high synergy effects.

The year 2011 has been one of hard work and fulfilment. The Scientific Council, for its part, is committed to pursuing the ERC's unique mission. It will continue to make fundamental contributions to the transformation of Europe into a world-leading knowledge area, where frontier research will be the hotbed for innovation and the well being of its citizens.

Prof Helga Nowotny
ERC President and Chair of its Scientific Council





Highlights - 2011 in Review

1.1 Mission

The European Research Council (ERC) marks a new approach to investing in frontier research in Europe. Funded through the European Community's Seventh Framework Programme (FP7) as the implementation of the *Ideas* Specific Programme, the ERC aims at reinforcing excellence, dynamism and creativity in European research by funding investigator-driven projects of the highest quality at the frontiers of knowledge.

The EU-funded research under this Programme responds to the needs to increase the attractiveness of Europe both for the best researchers worldwide and for industrial research investment. In addition, the Programme aims to strengthen the EU's capacity to generate new knowledge that will feed back into the economy and society.

The ERC is comprised of an independent Scientific Council of 22 distinguished scientists, engineers and scholars that establishes and monitors the implementation of the ERC's scientific strategy, and an autonomous Executive Agency that handles the operational management.

Two grant schemes designed by the Scientific Council form the core of its activities. Starting Grants (StG) support researchers at the early stage of their careers, with the aim of providing working conditions that enable them to become independent research leaders; and Advanced Grants (AdG) are designed to support outstanding and established research leaders by providing the resources necessary to enable them to continue the work of their teams in expanding the frontiers of scientific knowledge. In addition, to strengthen the ERC's role in the innovation chain from frontier research to socio-economical benefits, a Proof of Concept funding was introduced in the revised Work Programme 2011. ERC grant holders are now given the opportunity to apply for additional funding to establish the innovation potential of ideas arising from their ERC-funded frontier research projects.

By promoting excellence, the ERC has a fundamental role in reinforcing and making more coherent the whole chain of research and innovation, from blue sky research to market uptake. This curiosity-driven, competitive approach has allowed the *Ideas* Programme to fund a broad project-portfolio, including projects which address current grand challenges as well as fundamental questions. The ambition is to lay the foundations of solutions to future, unpredictable challenges that European society may face.

1.2 Main Achievements in 2011

The *Ideas* Specific Programme's budget implemented by the ERC is € 7.5 billion over a period of seven years. It represents around 15% of the entire FP7 budget.

In the implementation of the Programme in 2011, commitment credits of € 1.3 billion (global commitment) and payments of € 725 million were fully executed, representing 100% of the operational credits of the *Ideas* Specific Programme for 2011. Around 2.2% of the operational budget was spent on administration.

Growing number of ERC grant holders

The ERC schemes have been well received by the research community. Since its start in 2007 the ERC has completed eight calls for proposals for the Starting and Advanced Grant schemes. The competitions yielded a total of over 26,000 proposals: more than 2,500 have been selected for funding through a rigorous peer review process. By the end of 2011 more than 2,000 frontier-research projects were up and running in around 470 prestigious research institutions in Europe.

Figure 1 - Annual budget evolution 2007-2013

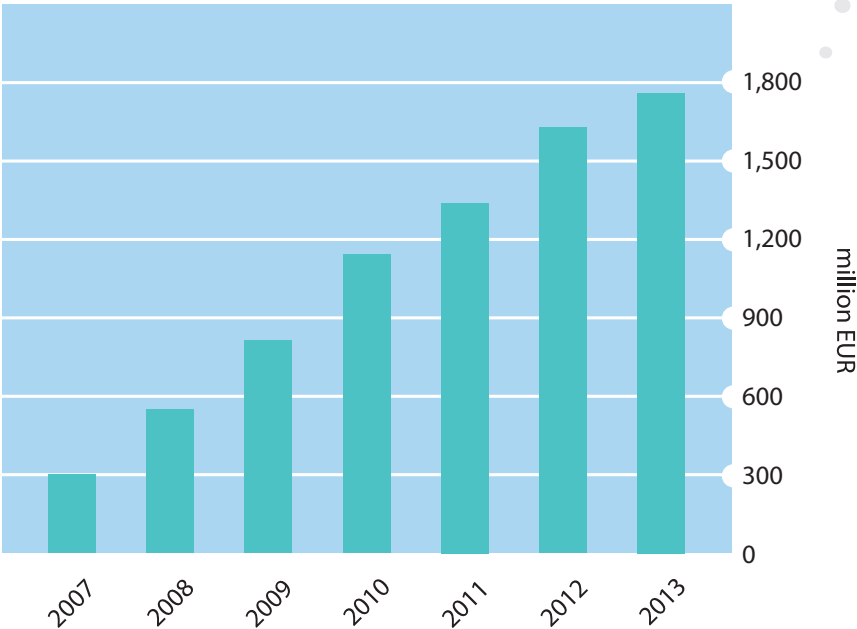
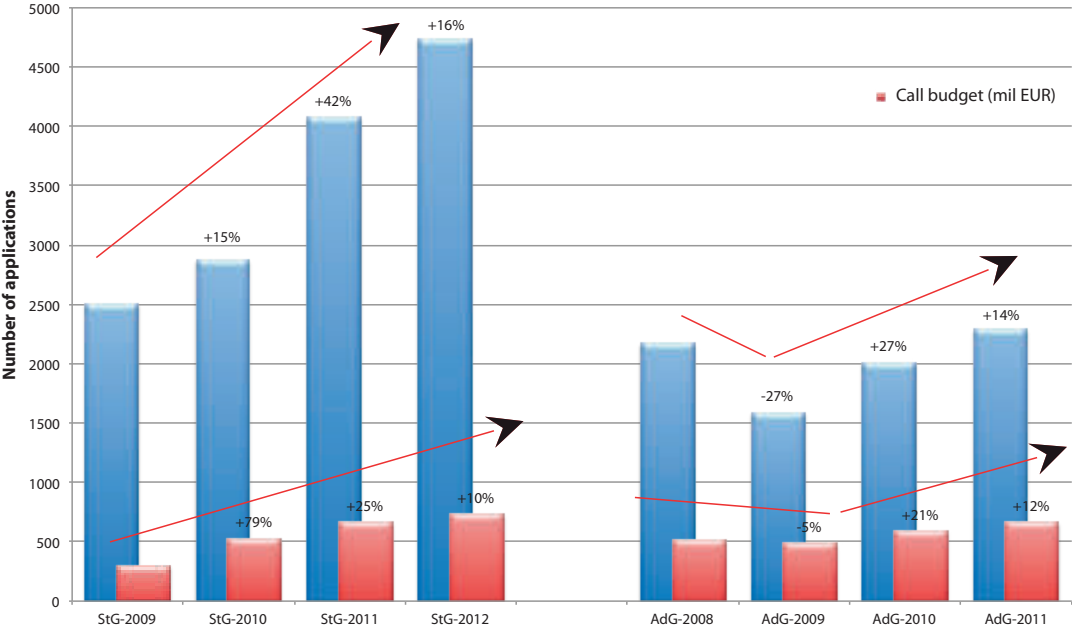


Figure 2 - Rising number of applications



*the first call StG-2007, exceptional in terms of applications, is not included. StG-2012 is not completed yet.

In response to the two 2011 calls the ERC received a total of 6,364 proposals, a 30% increase compared to 2010. Around 780 new awards were granted to individual investigators hosted by universities and other public and private institutions throughout the EU and Associated Countries, for a total budget of € 1.37 billion. More than 6,200 proposal evaluations were conducted, divided as usual into 25 different panels per call, involving more than 650 panel reviewers and around 1,800 external reviewers.

The efficient operation of the Starting and Advanced Grant calls during 2011 underlines the successful organisational development of the ERC Executive Agency, created to implement the *Ideas* Programme as an integrated constituent of the ERC. The Agency's staff increased in 2011, reaching 350 members at the end of the year.

The Agency managed to consolidate its key performance indicators in relation to grant implementation in 2011 and largely met its targets, with the exception of the "time to grant (the time from call deadline to signature of grants). While the target was to sign grant agreements in at least 75% of grants within 365 days, the actual time in 75% of cases was 440 days (Starting Grants 2010), 428 days (Advanced Grants 2010) and 391 days (Starting Grants 2011) respectively. The target of 365 days was fixed in consideration of international benchmarks.

Thanks to tight supervision and a performing follow-up system, the "time to pay" remained record with an average of 10,0 days for pre-financing and 13,6 days for interim payments.

In March 2011, the ERC launched a new funding initiative the "Proof of Concept" - designed to contribute to stimulating innovation. Funding of up to € 150,000 per grant is made available to researchers already holding ERC grants, allowing them to bridge the gap between their research and the earliest stages of an innovation.

The type of high-risk/high-gain research at the frontiers of knowledge that the ERC promotes often generates new discoveries and unexpected opportunities for innovative applications. With this new initiative the ERC is both committed to ensuring the full exploitation of the excellent ideas it funds and to capturing the maximum value from frontier research by supporting excellent ideas in their first steps towards the market.

The "Proof of Concept" provides translational funding to speed outcomes of research onto innovation. ERC grant holders can use the funding for activities such as technical validation, market research, clarifying intellectual property right position and strategy, or investigating potential business opportunities. The funding aims to support ERC grant holders in preparing a 'package' to be presented to venture capitalists or companies that may invest in this technology and take it through the early commercialisation phase.

Since its inception in 2007 the ERC has become a recognised success of the FP7 programme, having established itself as an indispensable component of the European Research Area with a high reputation for the quality and efficiency of its operations. The ERC has reached an extraordinary level of prominence on the European and international stage and achieved to increase confidence and enthusiasm surrounding EU research¹.

More than 2,500 top researchers in Europe are or will soon be thriving and enthusiastically pursuing their innovative ideas at the frontiers of knowledge. As of 2011, thirty-six ERC grantees have received prestigious international scientific prizes and awards. The number of articles acknowledging ERC-funding published in peer-reviewed journals increased from over 1,200 in 2010 to more than 1,750 in 2011, a total of more than 3,400 since 2008.

The ERC has become an important agent of change, with its European-wide competitive funding structure and capability to draw on a wider pool of talents and ideas: something that would not be possible for any national scheme. The best researchers and ideas compete with each other on an equal basis and ERC applicants have to perform at the highest level; the reward being flexible funding, independent of the local bottlenecks

¹ European Research Council Task Force, Final Report 12 July 2011. The document can be found at <http://erc.europa.eu/future-erc>.

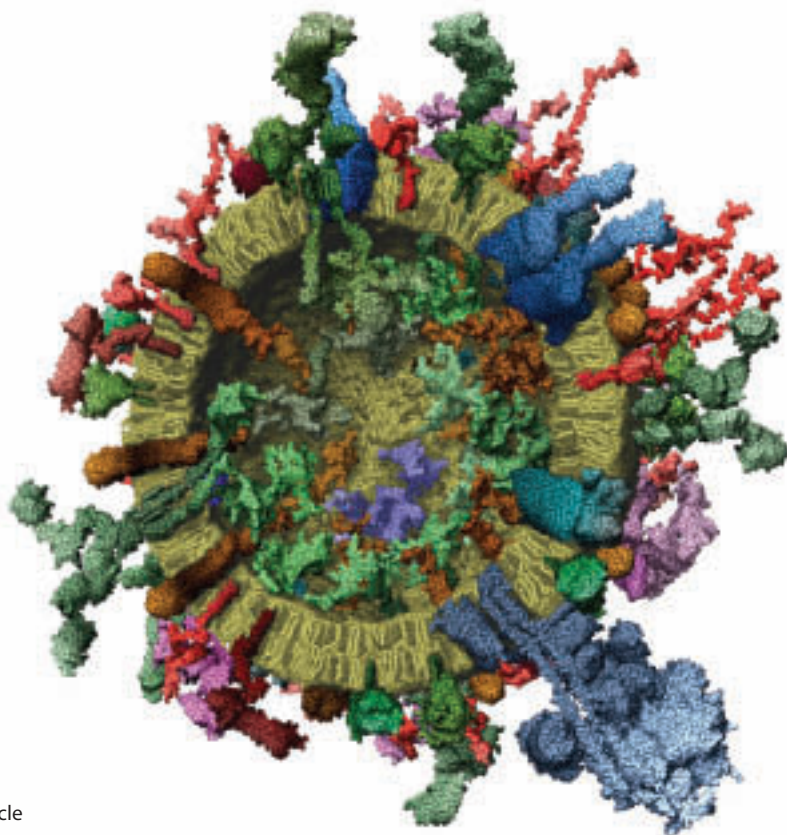
or the availability of national funding. The prestige of hosting ERC grantees and the accompanying 'stamp of excellence' also intensifies competition between European universities and other research organisations in offering the most attractive conditions for top researchers. In addition, at country level, national and regional authorities are analysing the ERC call results and improving their policies and practices accordingly.

The ERC celebrated its 2000th researcher funded

The ERC marked a symbolic milestone in October 2011, with the awarding of the 2000th ERC grant. With his Starting Grant, Dr Matthew Holt will join the VIB Department of Molecular and Developmental Genetics at K.U. Leuven, Belgium, in January 2012.

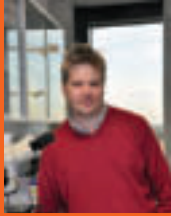
This top British scientist will use the grant to study the function of glial cells in brain function. The project has the potential not only to increase our understanding of normal brain function, but also to benefit patients suffering from a range of neurological conditions. Dr Holt has a particular interest in the cause and progression of strokes, which remains the major cause of adult disability in the EU.

Dr Holt graduated in Applied Biochemistry at the University of Liverpool, before carrying out his PhD in Physiology at the MRC Laboratory of Molecular Biology in Cambridge. In 2003, he started postdoctoral work in biochemistry at the Max Planck Institute for Biophysical Chemistry in Göttingen in Germany. Since 2010, he has been an independent researcher at the Free University in Berlin, supported by the Neurocure Initiative. Dr Holt will move to Belgium in 2012 to establish a new interdisciplinary research group.



© Takamori, Holt et al. Cell, 2006

Synaptic vesicle



THE 2000TH IDEA:

ERC Grantee: Matthew Holt

Host Institution: VIB, KUL, Belgium

Project: Molecular Studies of Astrocyte Function in Health and Disease (AstroFunc)

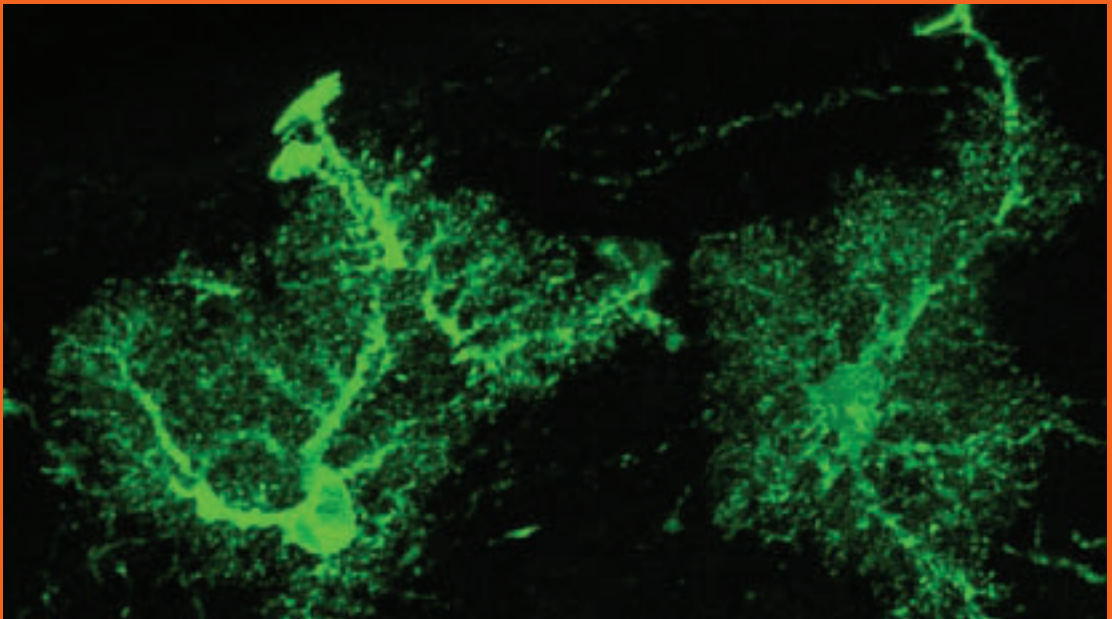
ERC Call: Starting Grant 2011

ERC funding: € 1.49 million for 5 years

The brain consists of two major cell types – neurons and glia. Dr Holt’s research concentrates on a particular type of glial cell – the astrocyte, which is actually the major cell type in the human brain. Until recently, these cells were often dismissed as merely being “brain glue” (a supportive matrix on which neurons grow and function). However, recent research suggests that this view is too simplistic, and astrocytes are more than 2 passive cells, actively modulating neuronal function.

Dr Holt’s group aims to identify the molecules and interactions that control this function – by taking advantage of recently developed techniques to rapidly isolate astrocytes and analyze their contents. In the long-term, the group hopes to identify important components that can be altered using advanced genetics to assess their importance in vivo.

By understanding the basic signalling pathways used by astrocytes, Dr Holt hopes the research will ultimately offer an alternative strategy for treating many neurological conditions – as every major brain injury and disease produces a ‘damage response’ in astrocytes (reactive gliosis). By understanding how astrocytes respond to injury and try to protect the nervous system, it is hoped that new therapeutic techniques can be developed.



Two astrocytes in mouse brain labelled by EGFP expression. Image by courtesy of Lynette Foo, Stanford Univesity (Barres group).

1.3 Highlights – 2011 in review

Task Force on the future of the ERC

As a radical departure from conventional methods for implementing EU research programmes the ERC has undergone close scrutiny since its launch in 2007. In July 2011 a decisive step towards providing a lasting legal and organisational structure of the ERC was taken with the publication of the report of the ERC Task Force on the future of the ERC.

The Task Force concluded that the ERC “has been a recognised success of the 7th Framework programme, having established itself as an indispensable component of the European Research Area with a high reputation for the quality and efficiency of its operations”.

It considered that an improved Executive Agency structure was the most appropriate and efficient in the timescale of Horizon 2020. The Task Force’s major recommendation was to effect a two-fold change to move the ERC further into line with international best practice and have a tangible effect on its flexibility and efficiency:

- An increase in the ERC’s operational autonomy, through a more extensive and explicit delegation of scientific and administrative responsibilities from the Commission to the ERC Scientific Council and ERC Executive Agency (ERCEA) respectively, with stronger roles for the ERC President and ERCEA Director.
- An improvement of the arrangements for oversight of the scientific, financial and administrative operations of the ERC, relaxing the day-to-day supervision.

In addition, a series of more specific measures were recommended designed to reinforce the ERC’s flexibility, efficiency and autonomy - without compromising its accountability - and to reduce red tape for researchers (see section 4 below). Many of these recommendations have already been implemented or will be implemented through the Horizon 2020 legislation, which was proposed by the Commission in November 2011 (see below). Taken together they should help to put the ERC on the best possible footing for the future.



Horizon 2020 proposals adopted

The European Commission announced on 30 November 2011 Horizon 2020, an € 80 billion programme for investment in research and innovation. For the first time, Horizon 2020 brings together all EU research and innovation funding under a single programme.

Horizon 2020 will focus funds on three key objectives. It will support the EU's position as a world leader in science with a dedicated budget of € 24.6 billion, including an increase in funding of 77% for the ERC. It will also help secure industrial leadership in innovation and provide funding to address major concerns shared by all Europeans, across six key themes such as: health, demographic change and well-being; and secure, clean and efficient energy.

The very significant boost proposed for the ERC's budget is recognition of the outstanding early success of the ERC, and of the key role of excellence and frontier research in promoting both economic recovery and Europe's future.

The proposal now needs to be adopted by the European Parliament and Council before the end of 2013.

Synergy Grant

Small research groups of Principal Investigators and their teams, frequently formed around interdisciplinary problems and shared facilities, have emerged in recent years as increasingly productive units of research. The Scientific Council therefore decided to pilot an extension of its portfolio of instruments to cover such small group scale research efforts with the first Synergy call published in October 2011. (See page 53).



*Some examples of research supported by the ERC
More ERC-funded projects can be found at <http://erc.europa.eu/projects-and-results>*



IMPROVING HEALTH AND SPORTS PERFORMANCE THROUGH THE BRAIN'S CONTROL

ERC Grantee: Cathy Craig

Host Institution: Queen's University Belfast, United Kingdom

Project: Temporal Enhancement of Motor Performance Using Sensory Guides (TEMPUS_G)

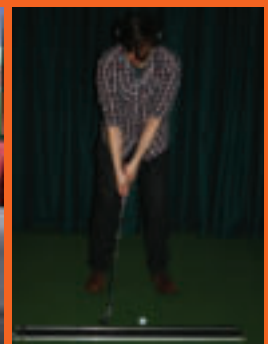
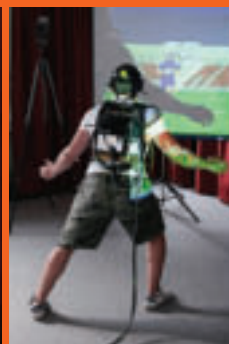
ERC Call: Starting Grant 2007

ERC funding: € 860,924 for 5 years

Every movement we make, such as moving our eyes to read this text or reaching out to pick up a cup, needs to be carefully controlled by our brain. The project conducted by Cathy Craig, funded through her ERC Starting Grant, is about understanding how the brain controls the timing of our movements so that we can improve movement performance. By carrying out basic experimental research in psychology, the research team has shown how specific patterns of visual and auditory information influence how and when we act. Together with engineers, they have created audio and visual based sensory guides that provide timing signals to increase movement performance in different groups of people.

The researchers have looked at how sensory guides can improve balance in older adults and walking in people with Parkinson's disease. With the advent of new gaming technology that uses movement as the game controller, the team has used this technology (e.g. the Nintendo Wii balance platform) to create its own bespoke audio-visual balance training games. The latest results have shown significant progress in functional balance in older adults (> 65 years) after playing these games for four weeks. These findings have major implications on/falls prevention programmes and general healthier active older lives.

To enhance movement performance in sport for instance, Cathy Craig's team has also developed a golf putting device that presents patterns of moving lights and sounds as a template for how the person should move. Sound has often been neglected in sports training, but has proved to be a very powerful way of improving the consistency and timing of a movement. Other research in the field of sport has involved state-of-the-art immersive, interactive virtual reality technology to examine how elite and novice players (in rugby and football) time their actions when confronted with different game scenarios (e.g. curved free kicks in football, side-steps in rugby).





IMPACT OF LONG-TERM EXPOSURE TO TRAFFIC NOISE ON HEALTH CONDITIONS

ERC Grantee: Mette Sørensen

Host Institution: Danish Cancer Society, Denmark

Project: Health consequences of noise exposure from road traffic (QUIET)

ERC Call: ERC Starting Grant 2011

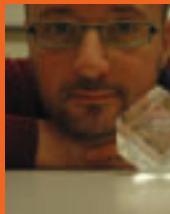
ERC funding: € 1.33 million for 5 years

Loud music, barking dogs or faulty car alarms are some of the issues people often complain about in urban areas. Traffic noise and its adverse effects on health have also become a growing public concern in big cities. Research has shown that traffic noise increases the risk of cardiovascular diseases, of higher blood pressure and heart attacks. In spite of this, very few studies have been conducted on the impact of traffic noise on pathologies other than cardiovascular diseases. Dr Mette Sørensen, who was awarded an ERC Starting Grant in 2011 explores if long-term exposure to road traffic noise is detrimental to the health of vulnerable groups such as children and elderly people.

Based at the Danish Cancer Society in Copenhagen, she showed in January 2011 in the first study ever that road traffic noise increased the risk for stroke, adding to the evidence that traffic noise may cause a range of cardiovascular diseases. In this study, she discovered that stroke risk increased by 27% for every additional 10 decibel of road traffic noise (10dB) among people aged over 65 while for younger persons there was no increase in risk. Her research was conducted on more than 57,000 patients who were living in homes with estimated noise levels ranging from 40dB – the sound of a quiet conversation – to 82dB – that of a busy street. Together with her team, she has used a noise calculation programme to map noise levels in a variety of locations, taking into account the traffic composition and speed, the road types (motorways, rural highways, etc.) and surfaces, building polygons and the position and heights of peoples' homes above the roads.

Although it has never been scientifically proven, traffic noise is also believed to act as a cause of stress and to disturb sleep. In turn, this could increase the risk for other major diseases. With her ERC grant, Dr Mette Sørensen intends to explore whether traffic noise has an impact on fertility, children's low weight, infections, congenital malformations and cognitive performance and to see if elderly people affected by noise disturbance are more likely to suffer from diabetes or cancer among other diseases. Her project will focus on two Danish samples of around 57,000 elderly people and 100,000 children. She will factor into her analyses other variables such as air pollution, smoking and education.

With 30% of the EU population living at places exceeding the 55dB World Health Organisation's noise limit, Dr Mette Sørensen expects that her results will enhance our knowledge of the harmful effects of noise, but also help policy-makers to better build up their national action plans to combat noise exposure.



A NEW GENERATION OF MINIATURISED FIBER-TOP DEVICES IS ON ITS WAY

ERC Grantee: Davide Iannuzzi

Host Institution: VU University Amsterdam, The Netherlands

Project: Fiber-top micromachined devices: ideas on the tip of a fiber (FTMEMS)

ERC Call: Proof of Concept 2011 & Starting Grant 2007

ERC funding: € 1.8 million for 5 years

The ultra-small could one day be exploited to solve the biggest problems. Fiber-top sensors, which are a new generation of miniaturised devices made of tiny mechanical movable structures on the tip of an optical fibre, have secured their future in several domains. The light coupled at the opposite end of a fibre allows users to detect the smallest movements of the structure, such as accelerations, vibrations, incoming airflows, change of pressure and eventually biological or chemical hazards. Thanks to their compact dimensions and the absence of electronics on the sensing head of the devices, fiber-top sensors adapt well to harsh environments: liquids, extreme temperatures, explosives, electromagnetic and noisy environments etc. They are also very small and handy, a major asset for applications beyond research laboratories.

Dr Davide Iannuzzi and his team had been working on a prototype at the VU University Amsterdam for two years, when he was awarded an ERC Starting Grant in 2007. Despite several technical obstacles, the researchers have invented and patented two fabrication methods for producing series of mechanical structures for fibres and have explored how the technology could be used for a range of applications. For example, they have implemented a humidity sensor for research laboratories, a pressure sensor for vacuum measurements and a flow meter for wind tunnels. They are now working on developing an accelerometer for measuring vibrations in large mechanical structures. It will be tested to monitor small seismic movements that occur before major landslides (in collaboration with the University of Padua) and to detect leaks in gas pipelines (in collaboration with the University of Warsaw). Other studies are under way to assess the performance of fiber-top devices in biochemistry.

Another major contribution of the project is in the area of atomic force microscopy, where it is now possible to “see” the bumps of a disk that are one millionth of a millimetre and obtain images at the nanoscale. As for a vinyl player, the tip anchored to the hanging end of a lever is only a few tenths of a millimetre long and has a radius of curvature of only a few atoms. Such simpler and less expensive fiber-top technology could solve some of the problems faced by laboratories today, and thus reduce the number of components and the costs of the device. This technology could also be miniaturised to the dimensions of a portable instrument, opening new possibilities for the medical sector for instance.

Its commercial potential is also high. Dutch entrepreneur Hans Brouwer and Davide Iannuzzi founded Optics11 in April 2011 – a spin-off company based in Amsterdam to bring fiber-top technology to market. And in November 2011 Dr Iannuzzi was awarded an ERC Proof of Concept grant to demonstrate the scalability of that fabrication method. With this additional funding, he will be able to show that, thanks to this invention, cost effective batch production of fiber-top cantilevers is indeed possible.





ERC GRANTEE'S FINDINGS LEAD STORY IN SCIENCE

ERC Grantee: Marc Chaussidon

Host Institution: Centre de Recherches Pétrographiques et Géochimiques (CRPG-CNRS),
Nancy, France

Project: Cosmochemical exploration of the first two million years of the solar system (CEMYSS)

ERC Call: ERC Advanced Grant 2008

ERC funding: € 1.27 million for 5 years

A publication by Dr Marc Chaussidon, from the Centre de Recherches Pétrographiques et Géochimiques - Centre National de la Recherche Scientifique in France, was the lead story of a Science issue in June 2011. His publication, acknowledging his support from the European Research Council, is co-authored with colleague Prof Bernard Marty, who is also a recent ERC grantee.

The publication presents analyses made on samples of the sun, which were collected in 2004 by the NASA mission Genesis. The results show that nitrogen molecules originating from the sun are very different from the nitrogen found on the Earth, Mars and on meteorites; they contain far less ^{15}N 'heavy' isotopes.

Understanding why molecules from planets of the inner solar system are so enriched in heavy isotopes in comparison with molecules from the sun's photosphere, whose composition represents the bulk of the solar system, may be one of the challenges of future studies in cosmo-chemistry.

The NASA Genesis mission came back to Earth in 2004. Despite a dramatic landing in the Utah desert (US), particles of sun winds could be collected and analysed by some laboratories, including by Prof Marty. The main objective of the NASA mission was to determine the composition of the sun's oxygen and nitrogen isotopes, which are particularly difficult to analyse as they are present in very low quantities and researchers need to extract them from the Genesis solar wind collectors' structure at a depth of around 50 nanometres. Following the installation of a new measurement device known as an ion microprobe in their laboratory at the end of 2009, Prof Marty repeated with Marc Chaussidon the analyses on some fragments to determine the isotopic composition of their nitrogen.

The results published confirm previous inferences by Prof Marty: solar wind nitrogen contains 40% less ^{15}N heavy isotopes, in comparison with the nitrogen found on Earth. In parallel, an American team found that the solar wind oxygen also contains less heavy isotopes than the oxygen found on Earth. These results are published in the same issue of Science.



UNCOVERING THE SECRETS OF EARTHQUAKES FAULTS

ERC Grantee: Giulio di Toro

Host Institution: Istituto Nazionale di Geofisica e Vulcanologia, Rome, Italy

Project: Uncovering the secrets of an earthquake: a multidisciplinary study of earthquake fault (USEMS)

ERC Call: Starting Grant 2007

ERC funding: € 1.99 million for 5 years

Recent events in Japan and Spain show how important it is to better understand the earthquake generation process in order to avoid natural environmental disasters. This project aims at better understanding one of the 'hottest' topics in earthquakes at present: the mechanics of faults as they happen during an earthquake.

As part of the research, one of the most powerful earthquake simulators, "SHIVA" (Slow to High Velocity Apparatus) has been successfully installed in Rome. SHIVA simulates the extreme conditions of deformation typical of earthquakes, high pressure and rapidly moving rocks, just as happens in nature. Under these deformation pressures some rocks have been found to melt. The analysis of the original data collected should provide an unprecedented insight into the mechanics of seismic faulting and also help to improve industrial techniques to handle solid material. This study has additional implications for understanding other friction-controlled processes, for instance rock landslides.



Earthquake crack, 2008



INVESTIGATING SIGNALLING MOLECULES IN BREAST CANCER

ERC Grantee: Mohamed Bentires-Alj

Host Institution: Friedrich Miescher Institute for Biomedical Research (FMI), Switzerland

Project: The role of protein-tyrosine phosphatases in breast development and cancer (PTPSBDC)

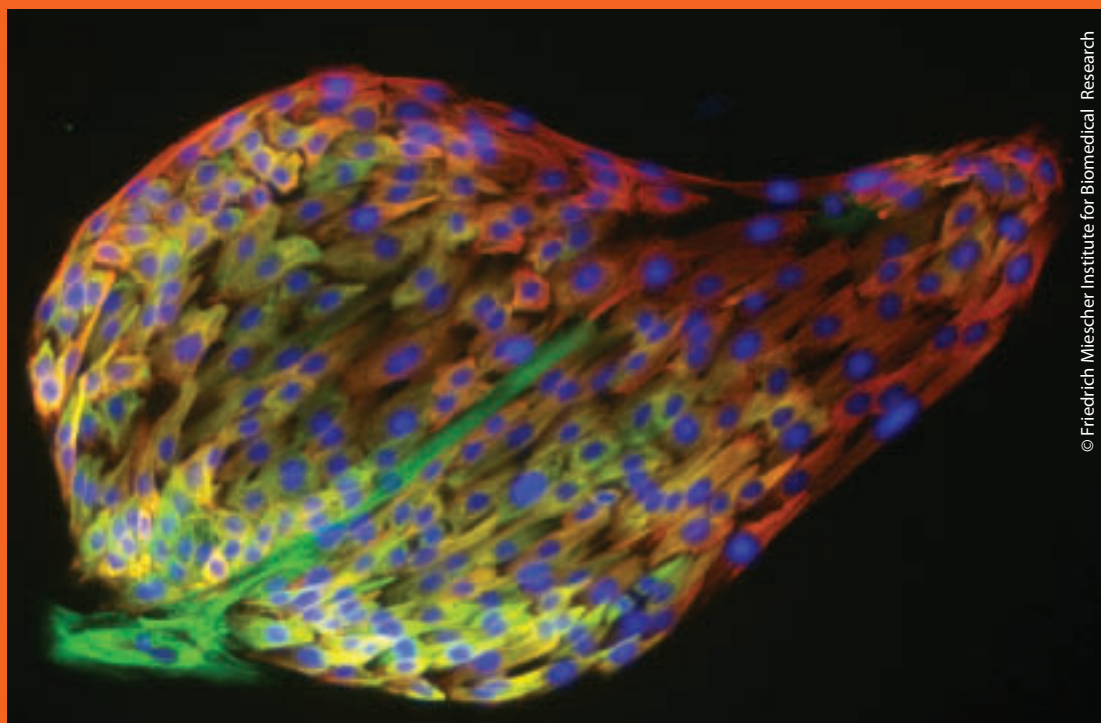
ERC Call: Starting Grant 2009

ERC funding: € 1.57 million for 5 years

Each year, an estimated 1.1 million new cases of breast cancer are diagnosed worldwide and as many as 400,000 women die from the disease annually. Although significant progress has been made in understanding breast tumour biology, most of the relevant molecules and processes remain undefined. Dr Bentires-Alj and his team focus on the still under-explored family of protein-tyrosine phosphatases (PTPs).

The team will study the role of PTPs in both healthy and diseased breast cells. The project aims to define the role of PTPs in the breast's normal development and its differentiation. In parallel, the team will look at the molecules' role in the development and progression of breast cancer. The results of this fundamental research will contribute to assess whether PTPs could be targeted by medicines to prevent, stop or slow down the evolution of cancer. If so, targeted therapies could be developed which would improve the clinical treatment of patients with breast cancer.

A video interview of Dr Bentires-Alj is available on the ERC website.



© Friedrich Miescher Institute for Biomedical Research

"Colony of modified primary human breast cell" (Bentires-Alj Lab)



TACKLING ANTIBIOTIC RESISTANCE HEAD ON

ERC Grantee: Nathalie Balaban

Host Institution: Hebrew University of Jerusalem, Israel

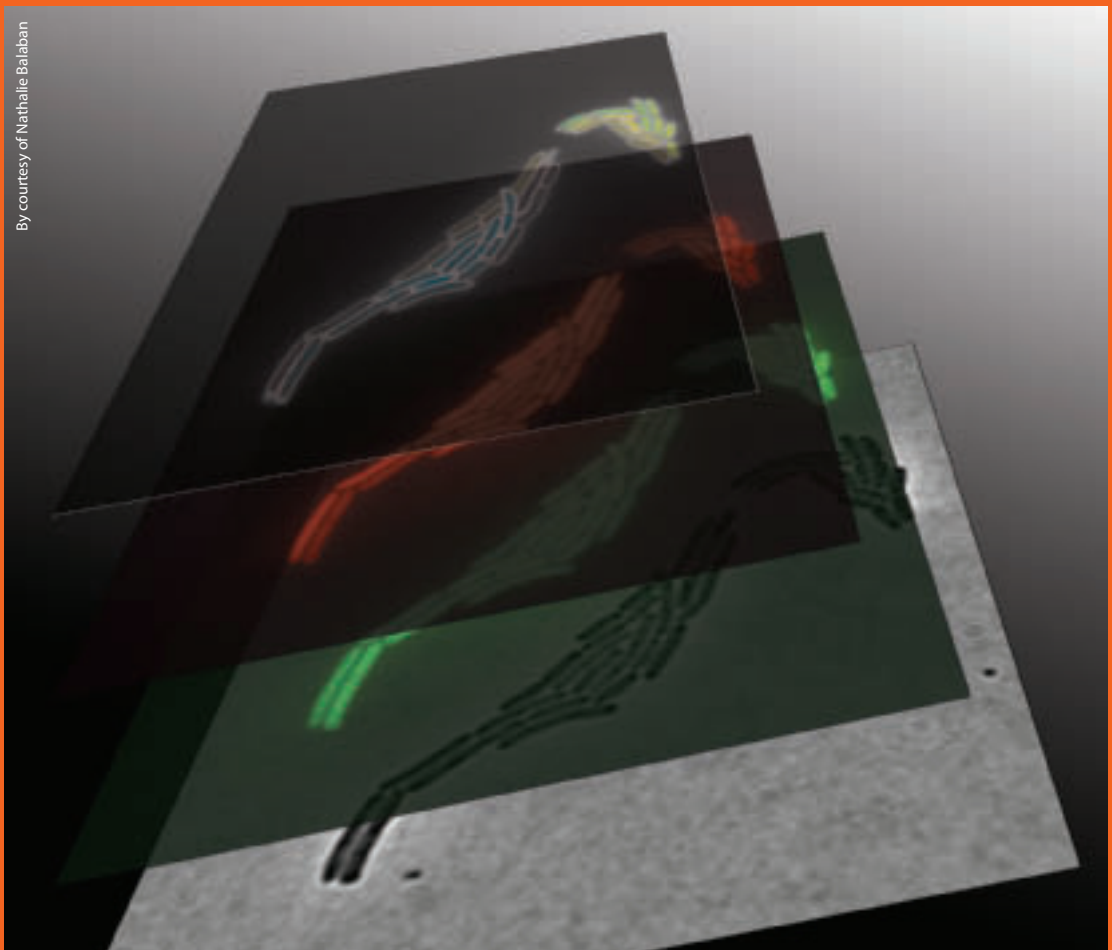
Project: Genetic and phenotypic precursors of antibiotic resistance in evolving bacterial populations: from single cell to population level analyses (EVOLOME)

ERC Call: Starting Grant 2010

ERC funding: € 1.46 million for 5 years

The recent E-coli outbreak in Germany emerged as one of today's major health threats across and outside Europe and proved to affect the rate of drug resistance. When new antibiotics are introduced, bacterial strains become more and more resistant to their action. This ERC-funded project aims to analyse how bacteria evolve to resist antibiotics at the single-cell level and at a population level. The researcher will use microfluidic devices to track these phenomena and will help our understanding the evolution of drug resistance. Results could make a major contribution in the field of evolutionary biology by pointing to new therapeutic targets and helping to minimise the spread of drug resistance.

By courtesy of Nathalie Balaban



Single E-coli cells under the microscope



SEE-THROUGH ELECTRONICS

ERC Grantee: Elvira Fortunato

Host Institution: New University of Lisbon, Portugal

Project: Advanced amorphous multi-component oxides for transparent electronics (INVISIBLE)

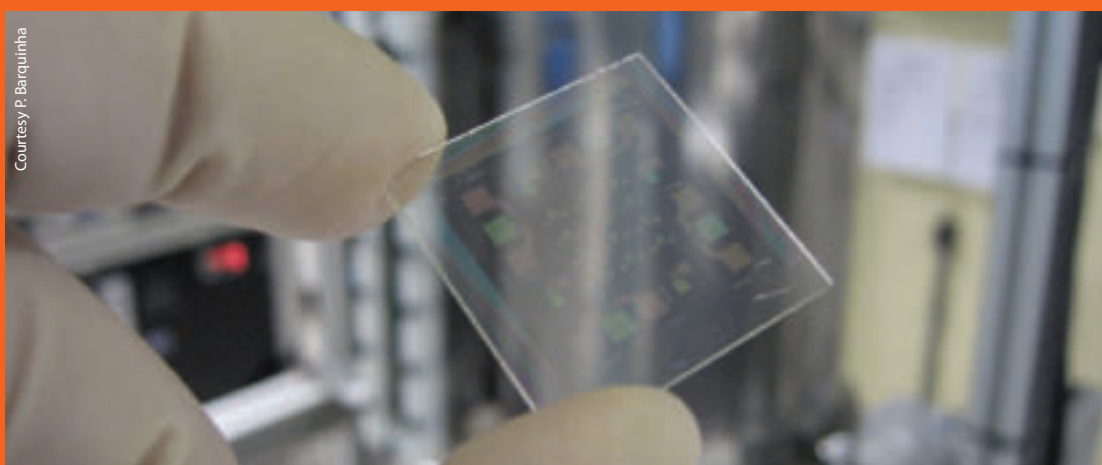
ERC Call: Advanced Grant 2008

ERC funding: € 2.25 million for 5 years

With her Advanced Grant, Professor Elvira Fortunato has received one of the largest grants awarded to a Portuguese scientist. An expert in the field of transparent electronics, Prof Fortunato used her ERC grant to set up the NOVA Nano-Fabrication Laboratory in February 2011, of which she is the Director.

Prof Fortunato's team have shown that metal oxides, such as zinc oxide, can be used in electronics as semiconductor transistors that could prove to be better than current semiconductor materials, such as silicon. In particular, zinc oxide, a transparent ceramic, has been commonly used for centuries as an anticorrosion tool for coating pans. One of the major advantages of this novel use is that metal oxide semiconductor devices do not produce as much waste heat. They are also cheaper, faster and do not degrade. The team has processed metal oxides at room temperature, making it a cheaper and easier method of manufacture than using powerful ovens.

These electronic systems will not only be useful in leisure devices, but also in laboratory equipment for detecting proteins and genetic material. Working with Samsung, Elvira and her team are developing the first transparent television screen. In cooperation with Fiat, she is working on the first 'windscreen of the future', allowing drivers to have digital displays appear and disappear on their car windscreen. This fundamental research will lead to innovative developments in other multi-billion dollar industries involving electronics, such as ink-jet printing and medical diagnostics.



Transparent electronics





Advancing Frontier Research

The ERC Starting Grants address the gap in funding opportunities for researchers in the early stages of their careers. Through this scheme researchers are supported in establishing or consolidating their own team with a view to a transition from working under a supervisor to becoming independent researchers.

The ERC Advanced Grants are intended to support innovative, ambitious research projects by investigators who have already established themselves as exceptional independent research leaders.

Both types of grants operate without pre-defined thematic priorities and without any nationality restrictions for the principal investigators or the members of their team. The only restriction is that the research is performed in the EU or one of the FP7 Associated Countries.

The ERC *Proof of Concept Grant* is open to researchers who have already been awarded an ERC grant. It addresses the funding gap in the earliest stage of an innovation and proposes an efficient way of moving excellent ERC-funded ideas towards their first steps in the direction of the market.

3.1 From 2007 to 2011: five years of ERC calls

ERC Calls for Proposals 2007-2011

ERC Call	Applications received	Of which		
		Evaluated*	Funded	Success rates (%)****
Starting Grant 2007	9,167	8,787	299	3.4
Starting Grant 2009	2,503	2,392	245	10.2
Starting Grant 2010	2,873	2,767	436	15.8
Starting Grant 2011	4,080	4,005	485	12.1
Starting Grants total	18,623	17,951	1,465	
Advanced Grant 2008	2,167	2,034	282	13.9
Advanced Grant 2009	1,583	1,526	245	16.1
Advanced Grant 2010	2,009	1,967	271	13.8
Advanced Grant 2011**	2,284	2,245	294	13.1
Advanced Grant total	8,043	7,772	1,092	
Total StG and AdG	26,666	25,723	2,557	
Proof of Concept 2011-1**	78	73	30	41.1
Proof of Concept 2011-2***	73	66		

* Ineligible and withdrawn proposals not taken into account

** Selected for funding

*** Granting process not yet completed for the second deadline of the call

**** Basis: evaluated proposals

By the end of 2011 and since the start of the *Ideas* Programme in 2007, the ERC had launched in total 10 Starting and Advanced Grant calls for proposals:

- Eight calls were completed (Starting Grant 2007, 2009, 2010 and 2011; Advanced Grant 2008, 2009, 2010 and 2011), i.e. the evaluation process was concluded and the results were communicated to applicants and other stakeholders.
- The deadline for submission of proposals of the Starting Grant 2012 call had passed and the evaluation process was on-going at the end of 2011.
- A call for Advanced Grant 2012 was launched in autumn 2011 with deadlines in spring 2012.

In addition, the first call for Proof of Concept was launched in March 2011, with a first deadline in June, for which the evaluation process was concluded and the results were communicated to applicants and other stakeholders; a second deadline was in November. The evaluation process was still on-going at the end of 2011.

Finally, the first call for the Synergy Grant 2012 was launched in October 2011, with a deadline for submission in January 2012.

The number of applications received in 2011 confirms an increasing trend. In response to the 2011 calls (both Starting and Advanced Grants), a total of 6,364 proposals were submitted, representing a 30% increase on the 2010 submissions, with a very large increase (42%) for the Starting Grants. The response to the 2012 Starting Grant competition, with 4,741 proposals received, represents an increase in demand of 16% compared to the last Starting Grant call.

Distribution per country of residence of the principal investigator at the time of application

Call	Evaluated				Funded			
	EU	Assoc. Countries	Other Countries	Total	EU	Assoc. Countries	Other Countries	Total
Starting Grant 2007	7,885	683	219	8,787	251	35	13	299
Starting Grant 2009	2,125	202	65	2,392	207	29	9	245
Starting Grant 2010	2,432	268	67	2,767	363	56	17	436
Starting Grant 2011	3,575	315	115	4,005	420	49	16	485
Total	16,017	1,468	466	17,951	1,241	169	55	1,465
Adv. Grant 2008	1,693	300	41	2,034	229	47	6	282
Adv. Grant 2009	1,278	212	36	1,526	197	43	5	245
Adv. Grant 2010	1,677	238	52	1,967	226	40	5	271
Adv. Grant 2011	1,984	203	58	2,245	258	33	3	294
Total	6,632	953	187	7,772	910	163	19	1,092
Grand Total	22,649	2,421	653	25,723	2,151	332	74	2,557

FP7 Associated Countries

Albania, Bosnia-Herzegovina, Croatia, Iceland, Israel, Faroe Islands, Liechtenstein, the Former Yugoslav Republic of Macedonia, Republic of Moldova, Norway, Republic of Montenegro, Serbia, Switzerland, Turkey.

3.2 The 2011 snapshot

ERC Starting Grants

The 2011 ERC Starting Grant call was published in July 2010 with an indicative budget of € 661 million. In total 4,080 proposals were received distributed by domain as follows: 1,690 proposals in Physical Sciences and Engineering, 1,440 in Life Sciences and 950 in Social Sciences and Humanities. A total of 485 proposals were selected for funding (data as of January 2012). More than € 670 million was awarded with an overall average awarded grant of around € 1.4 million.

The 2012 Starting Grant call was published in July 2011 with an indicative budget of € 730 million. A total of 4,741 proposals were submitted: 2,058 in Physical Sciences and Engineering, 1,653 in Life Sciences and 1,030 in Social Sciences and Humanities, representing respectively 43%, 35% and 22%, of the proposals, a splitting similar to the previous two calls (see Figure 3).

ERC Advanced Grants

The 2011 ERC Advanced Grant call was published in November 2010 with an indicative budget of €661 million. A total of 2,284 proposals were received distributed by domain as follows: 917 proposals in Physical Sciences and Engineering (40%), 789 in Life Sciences (35%) and 578 in Social Sciences and Humanities (25%). The evaluation process resulted in a total of 294 proposals retained for funding (data as of January 2012) with a total of about € 700 million awarded and an overall average awarded grant of around € 2.4 million (see Figure 4).

The 2012 ERC Advanced Grant call was published in November 2011 with deadlines between February and April 2012 and an indicative budget of € 680 million.

ERC Proof of Concept 2011

The first Proof of Concept (PoC) call was published in March 2011 with an indicative budget of €10 million, approximately half of which was allocated to each of the two evaluation rounds following the two deadlines for submission set in June and in November 2011 respectively. Only researchers already holding an ERC Starting or Advanced grant were eligible to apply for Proof of Concept funding. A total of 78 proposals were received at the first deadline and 73 of them were considered eligible for evaluation, with the following distribution per domain of the original ERC grant held by the applicant: 58% in Physical Sciences and Engineering, 34% in Life Sciences and 8% in Social Sciences and Humanities. The evaluation resulted in 30 proposals retained for funding, seven coming from researchers hosted by an organisation in the Netherlands, seven in the UK, four in Israel, two in France and one in each of the following countries: Austria, Belgium, Switzerland, Germany, Greece, Spain, Finland, Hungary, Ireland and Italy.

At the second deadline, 73 proposals were received and 66 of them were considered eligible for evaluation, with the following distribution per domain of the original ERC grant held by the applicant: 61% in Physical Sciences and Engineering, 34% in Life Sciences and 5% in Social Sciences and Humanities.

The projects, selected through peer review evaluation, address topics ranging from health to telecommunications, research on needle-free injections of vaccines, safer mobile communications, responses to consumers' concerns on health and food safety, as well as new technologies: for example wheelchairs controlled simply by sniffing. With a very limited part of the whole ERC budget, the initiative can unleash considerable innovation potential.

Figure 3 - **Starting Grants: Submissions 2007 - 2012**

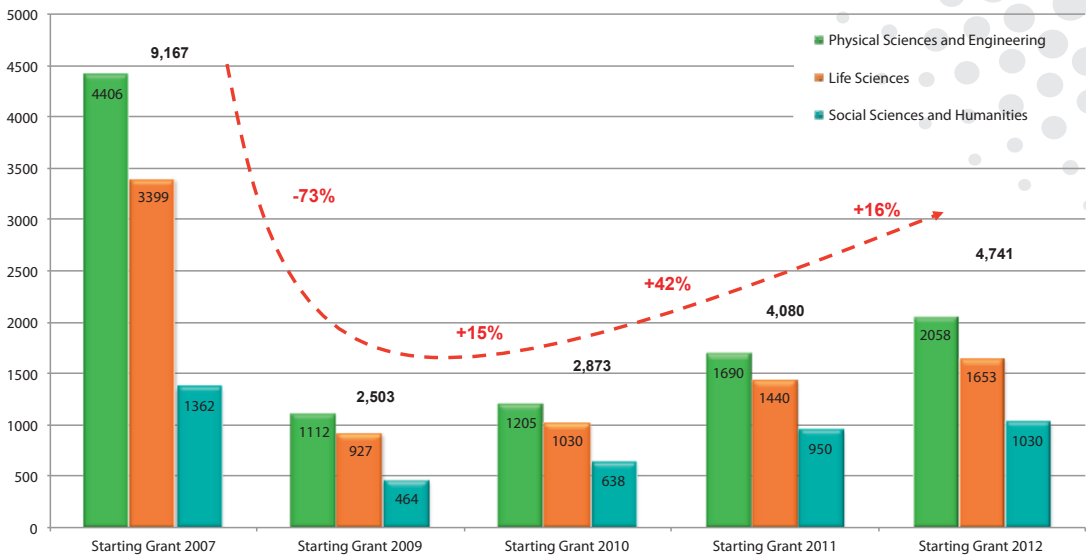
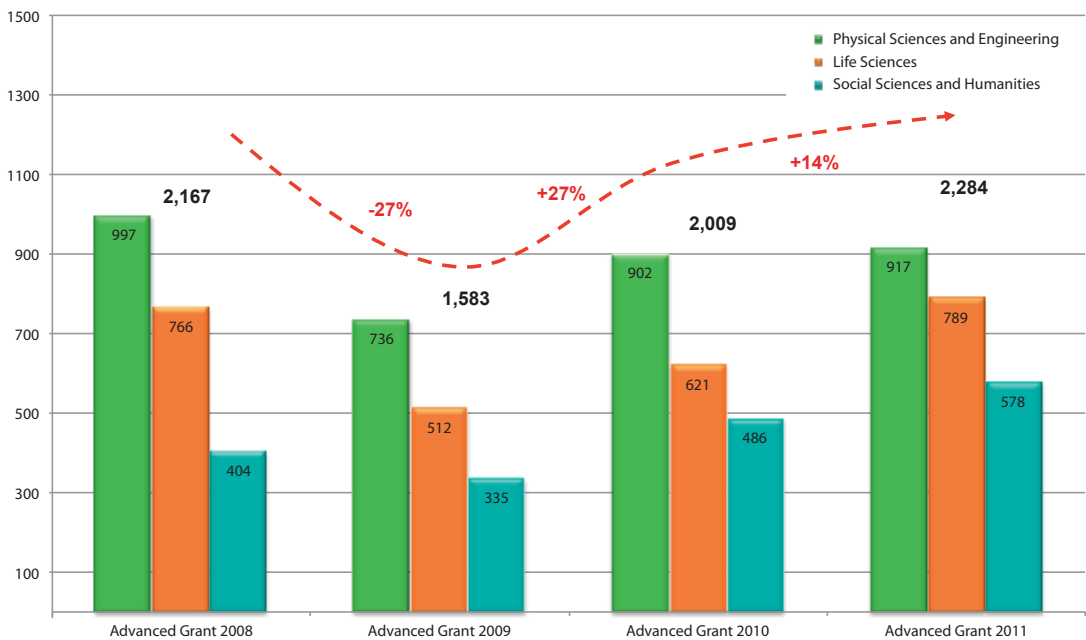


Figure 4 - **Advanced Grants: Submissions 2008 - 2011**





NEEDLE-FREE, RAPID AND SAFE INJECTIONS FOR PATIENTS

ERC Grantee: Detlef Lohse

Host Institution: Universiteit Twente, The Netherlands

Project: Needle-free injection with supersonic microjets (Needle-free)

ERC Call: Proof of Concept 2011 & Advanced Grant 2010

In the public mind, vaccines and injections are often associated with fear and risks of infection. This project aims at changing this thinking. Researchers have discovered that when a laser pulse is precisely directed into a liquid-filled capillary, a vapour bubble is instantaneously produced. It emits a shock wave, which then creates a thin, ultra-fast micro-jet (i.e. supersonic, up to 1000m/s). The jets can be 10 times smaller than the diameter of the micro-capillary. The project will explore the possibility commercialising needle-free injections of vaccines and drugs for both humans and animals. Ultimately, it could have tremendous applications: it would not only limit consumables and reduce infection risks, but it could also be used for larger campaigns of vaccination in refugees' camps for instance.



Water droplet falling on a hot surface





CONTROLLING ELECTRONIC DEVICES AND COMPUTERS BY SNIFFING

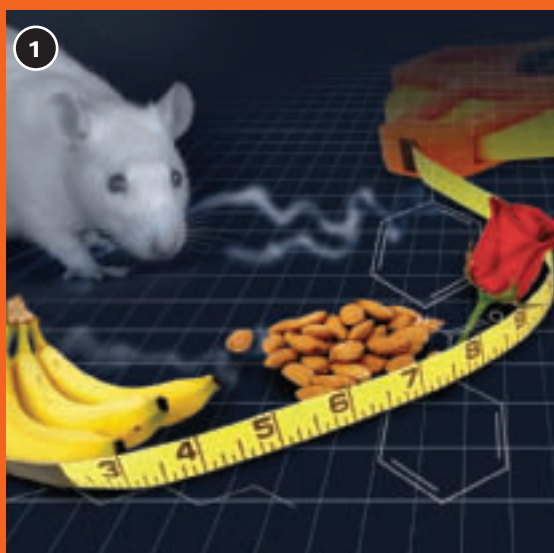
ERC Grantee: Noam Sobel

Host Institution: Weizmann Institute of Science, Israel

Project: Sniff-Controlled Devices (Sniffcontrol)

ERC Call: Proof of Concept 2011 & Starting Grant 2007

During the ERC project, the research team built a sniff-sensor that used signals generated by sniffs to power external machines. The device, called 'sniffcontroller', notably improved the lives of individuals who participated in the study, allowing completely paralyzed people to communicate text, surf on the web and even to drive an electric wheelchair. The team will now aim at optimizing the device and creating a pilot platform to order it on the web, test it, and provide feedback. In order to find out whether it can be transformed into a product for the wider public, they will also explore the applications of the sniffcontroller for survivors of strokes, trauma or neurodegenerative diseases, as well as for healthy people with temporary disabilities.



1 • A conceptual schematic demonstrating a metric developed to measure smells, as in the ERC-funded studies by Haddad et al., 2008a; 2008b.

2 • "The functional magnetic resonance imaging (fMRI) set up". Odours are generated within the fMRI machine, allowing the team to investigate odour-induced brain activity, as in the ERC-funded study by Plotkin et al., in P.N.A.S. 2010.



IMPACT OF SOCIAL ANXIETIES ABOUT FOOD ON POLICIES AND BUSINESSES

ERC Grantee: Peter Jackson

Host Institution: University of Sheffield, United Kingdom

Project: Food Futures: providing independent research and advice to food businesses and NGOs

ERC Call: Proof of Concept 2011 & Advanced Grant 2008

The related ERC project aimed at explaining the extent to which consumer anxieties about food shape decisions taken at various points along the supply chain 'from farm to fork'. This includes taking various issues into account, from international food security to domestic food hygiene and public health. This proof of concept will go a step further in making recommendations on a wider range of topics, from quality and provenance of food, to innovations in food labelling, marketing and consumer practice. The project will test the market for these new ideas with a view to providing consultancy services to various groups (manufacturers, retailers, food service organisations and government agencies) so that they are better equipped to interpret and respond to consumers' concerns about health and food safety when developing new products.



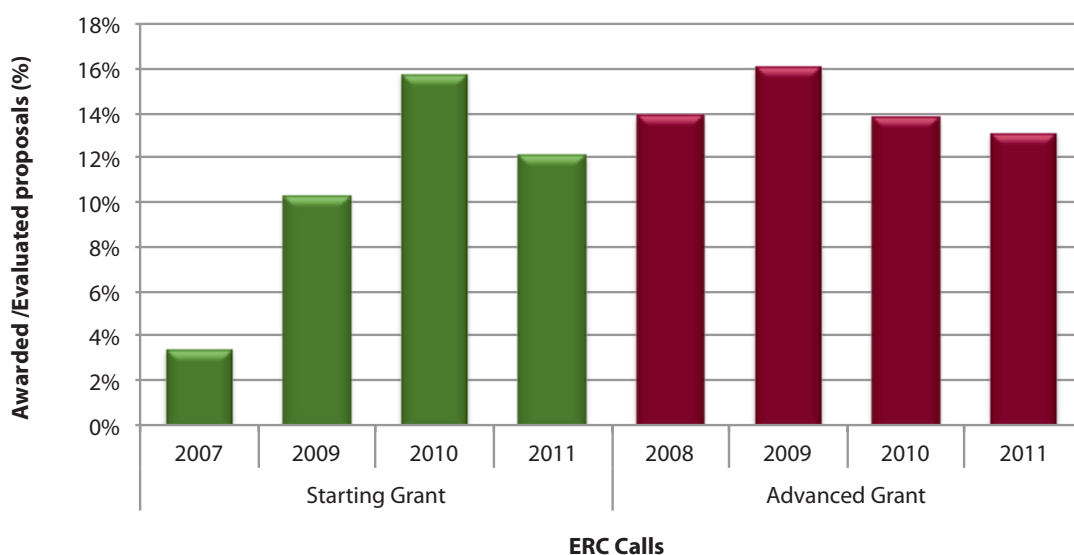
Success rate

The ERC supports investigator-driven frontier research through a competitive review process greatly recognised and highly respected by the entire scientific community, based on the sole criterion of scientific excellence. For each ERC call, approximately 2,800 members of the science, engineering and social science and humanities communities participate in the excellence review process as panellists and external reviewers.

In 2011, the percentage of proposals awarded through this process over the total number of proposals evaluated in the Starting Grants was lower than in 2010 due to the large increase in the number of submitted proposals (42%), while the call budget increase was only 10%. The success rate dropped from 15.8% in 2010 to 12.1% in 2011.

The success rate of the Advanced Grants fell slightly to 13.1% in 2011 from 13.8% in 2010 (see Figure 5).

Figure 5 - **Success rate (8 ERC calls 2007-2011)**



Gender distribution of ERC grants

With eight completed calls, around a fifth of the more than 2,500 ERC grantees are women. The share is substantially higher in the Starting Grant competitions with 24% women grantees, compared to 12% in the Advanced Grant competitions. These relative low shares are partly due to the lower proportion of women applying to each of the two grant schemes, with an average of 29% in the Starting Grants and 14% in the Advanced Grants (see Figure 6 and 7).

Although broadly speaking these ratios reflect the proportion of women at the different stages of their research careers in Europe, the ERC is working on encouraging more female top researchers to apply for ERC grants. With the goal of increasing the number of women scientists among its awardees, the Scientific Council has set up a gender-equality plan. The objective is to raise awareness among potential women scientists, in order to improve the number of female applicants submitting ERC proposals in all research fields. It also aims at a fair gender balance among the ERC peer reviewers and provides for other measures to identify and challenge any potential gender bias in the ERC evaluation procedure.

The plan, based on the view that women and men are equally able to perform excellent frontier research, has been

Figure 6 - **Share of female applicants* per ERC call by domain: Starting Grants**

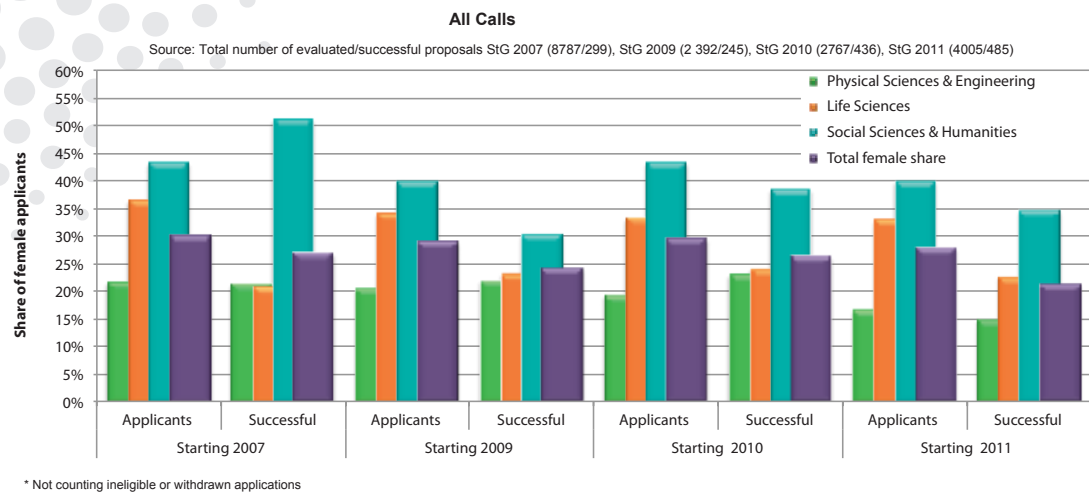
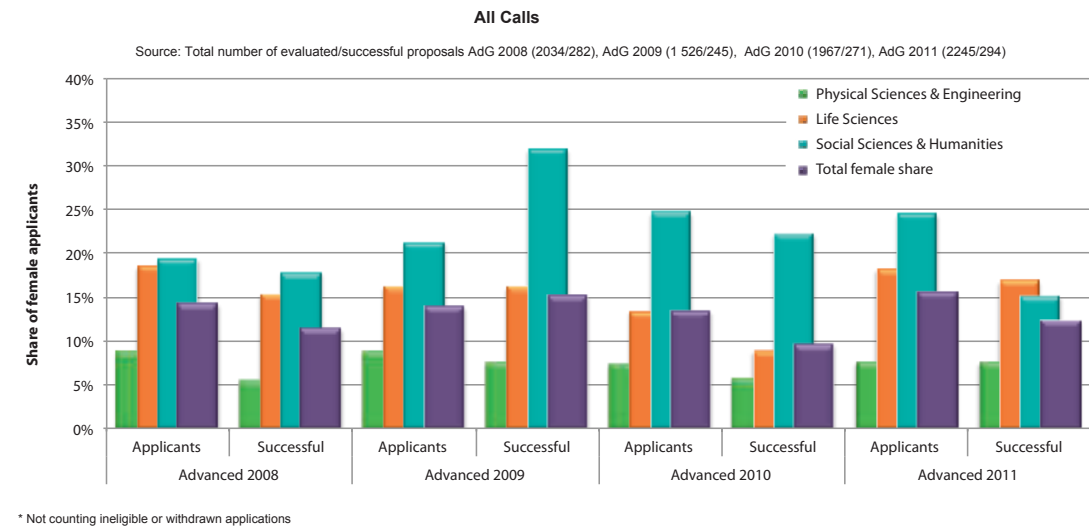


Figure 7 - **Share of female applicants* per ERC call by domain: Advanced Grants**



prepared by the ERC Gender Balance Working group and adopted by the Scientific Council in December 2010. It was published in February 2011².

During 2011 the ERC has participated in various meetings and seminars attended by female researchers where the ERC grants have been promoted. The Chair of the Working Group on Gender Balance, Prof Lago, represented the ERC at the first European Gender Summit in November 2011, where reference to the ERC was made several times alongside the most prestigious awards. In December 2011 a Workshop was organised in Brussels on 'Advancing gender balance in science from the perspective of funding agencies'. Guest speakers shared experiences of NSF, CNRS and the University of Heidelberg. Future plans of the Working group include analysis of the gender aspects in career structures and career paths.

² http://erc.europa.eu/sites/default/files/document/file/erc_scc_gender_equality_plan_2007_2013.pdf

Host Institutions

The majority of the Starting Grant holders of the first four calls are hosted by institutions located in the EU, while 12% have a host institution in an FP7 Associated Country. For the first four Advanced Grants calls, the share of host institutions from Associated Countries is significantly higher (16%). Figure 9 and Figure 10 (page 42-45) show the geographical distribution of organisations hosting 2011 Starting and Advanced Grant holders. A list of the most successful host institutions can be found on page 72.

Generally most of the ERC grant holders are nationals of the country of their host institution, with the exception of Switzerland and Austria with 76% and 66% foreign grantees of the total hosted (see figure 8). Only the United Kingdom comes closer to this level with 44% foreign grantees, while for the other countries the ratio is below one-third. In absolute numbers the UK hosts 242 foreign ERC grantees (91% of them already resident in the UK at the time of application) and Switzerland 143 (78% of them already resident in Switzerland). The ratio of foreign researchers is very small in Israel (3%), Hungary (7%), and Italy (10%), when considering only countries with more than 25 grantees.

The same figure shows the tendency of some nationalities to work abroad rather than in their home country: 54% of Greek and 46% of Austrian grantees are based in foreign countries. The numbers are in particular high for Germany and Italy, with 156 and 106 nationals respectively hosted by institutions away from their home country. In both cases about 90% of these grantees were resident abroad at the time of application.

The ERC grantees list displays 53 nationalities, as specified at the time of granting. Among these nationalities 20 are outside the European Research Area (ERA): 5 Asian, 4 African, 4 Latino-American, 3 from the ex-Soviet space, in addition to Australia, New Zealand, the US and Canada. US nationals are by far the most common, with 75 grantees representing 47% of all non-ERA grantees (namely non-EU and non-Associated Countries). Most of the non-ERA grantees (89%) were nevertheless already resident in an ERA country at the time of their application.

Attracting researchers from outside the European Research Area

ERC competitions are open to any researcher anywhere in the world who wants to conduct a research project in an EU Member State or FP7 Associated Country. ERC efforts in this context have been focused on attracting researchers from countries outside the ERA (European and non-European).

The eight completed calls for proposals attracted in total less than 700 applications from researchers who reside in countries outside the European Research Area. Those researchers account for less than 3% of applicants in both Starting and Advanced Grants. These proportions have remained relatively stable in the eight calls.

In total, the ERC has funded 74 researchers who, at the time of application, were resident outside the ERA.

In addition to the relatively attractive funding conditions, both ERC Starting and Advanced Grant schemes offer incentives to encourage researchers to move from countries outside the ERA to an EU or Associated Country.

- Researchers can request additional financial resources to cover “start-up” costs such as the purchase of major equipment they may not have in their new research environment (€ 500,000 for Starting Grant and € 1 million for Advanced Grant).
- The ERC funding conditions request researchers to spend 50% of their working time in Europe or an Associated Country and 50% (Starting Grants)/ 30% (Advanced Grants) of their working time on the project.

These incentives target both citizens of countries outside the ERA and European researchers working in those countries.

Of the 74 grantees that were resident outside the ERA at the time of their application, 55 (or 74%) have been funded by the Starting Grant, while 19 have been funded by the Advanced Grant Scheme. They are mainly nationals of EU Member States and of Associated Countries (56 or about three quarters). The US accounts for more than two thirds of the incoming non-ERA nationals (13 funded researchers). At the same time, the vast majority of incoming grantees (64 researchers of the total 74) were resident in the US at the time of application. In Social Sciences and Humanities 17 out of 18 grantees returned from the US. The United Kingdom attracted 22% of the incoming grantees, followed by Germany with 13%.

Their distribution by research domains differs slightly from the overall picture: among the returnees, researchers from Life Sciences account for 42% and those from Physical Sciences account for 34%. The distribution among all ERC grantees has a different composition: Physical Sciences make up 45% of all grantees and Life Sciences 36%.

Anecdotal evidence suggests that the effects have been more significant in certain areas, notably in the field of Economics, where some leading researchers have been attracted back to Europe from the US. There seems to be a genuine renaissance of economics in Europe with emerging centres of excellence which has triggered the return of European researchers. While the emergence of those centres precedes the ERC existence, the ERC seems to be contributing to the process³.

Europe as a prime location for scientists from all over the world

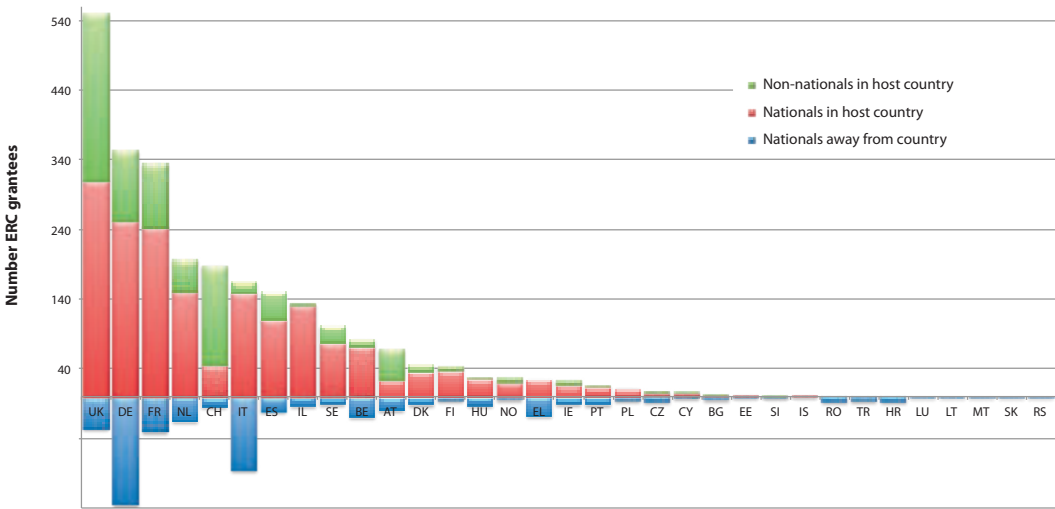
In 2011 the Scientific Council's Working Group on 'ERC Internationalisation Strategy'⁴ suggested a set of measures in order to further extend the global outreach of ERC calls. These include the crucial role of the ERC Secretary General in establishing good relations with international science communities as well as liaising with high-level research organisations abroad.

The further simplification of the ERC Work Programme, with a specific focus on applicants from outside the ERA, is one of the measures foreseen by the Working Group. The possibility, already included in the Work Programme, for non-ERA grantees to obtain additional financial resources to cover 'start-up' costs as well as the flexibility in the use of the 50% working time requirement on an ERC project will be emphasised. Also the possibility to involve additional team members from outside the ERA will be further promoted as an opportunity to recruit researchers from the best research institutions worldwide. In particular, the recruitment of international researchers will be further supported by encouraging ERC grantees and ERC hosts institutions to publish internationally all open research positions in ERC projects. Last, but not least, the presence of more international members in ERC evaluation panels is considered to be making a significant contribution to the internationalisation of the ERC competitions.

³ http://www.forbes.com/2010/01/18/free-market-economists-us-europe-opinions-contributors-guy-sorman_2.html

⁴ Formerly called "Third Countries participation" the Working Group was created to devise adequate strategies to attract more high quality researchers from non-ERA countries.

Figure 8 - **Country of host institutions*** and origin of grantees

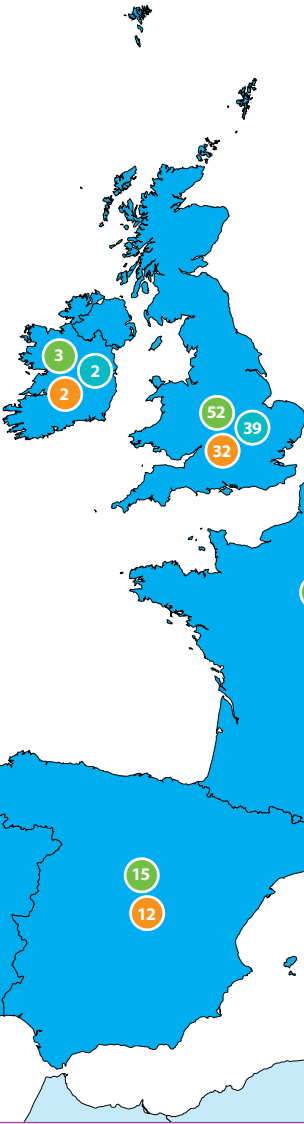


*Host institution refers to the current signatory of the grant agreement (as of February 2012). EU and FP7 Associated Countries



Figure 9 - **ERC Starting Grant: 2011 Call**
Geographical distribution of grant holders

- Physical Sciences & Engineering
- Life Sciences
- Social Sciences & Humanities



Data as of January 2012.
Host organisations that signed/were invited to sign the first grant agreement.

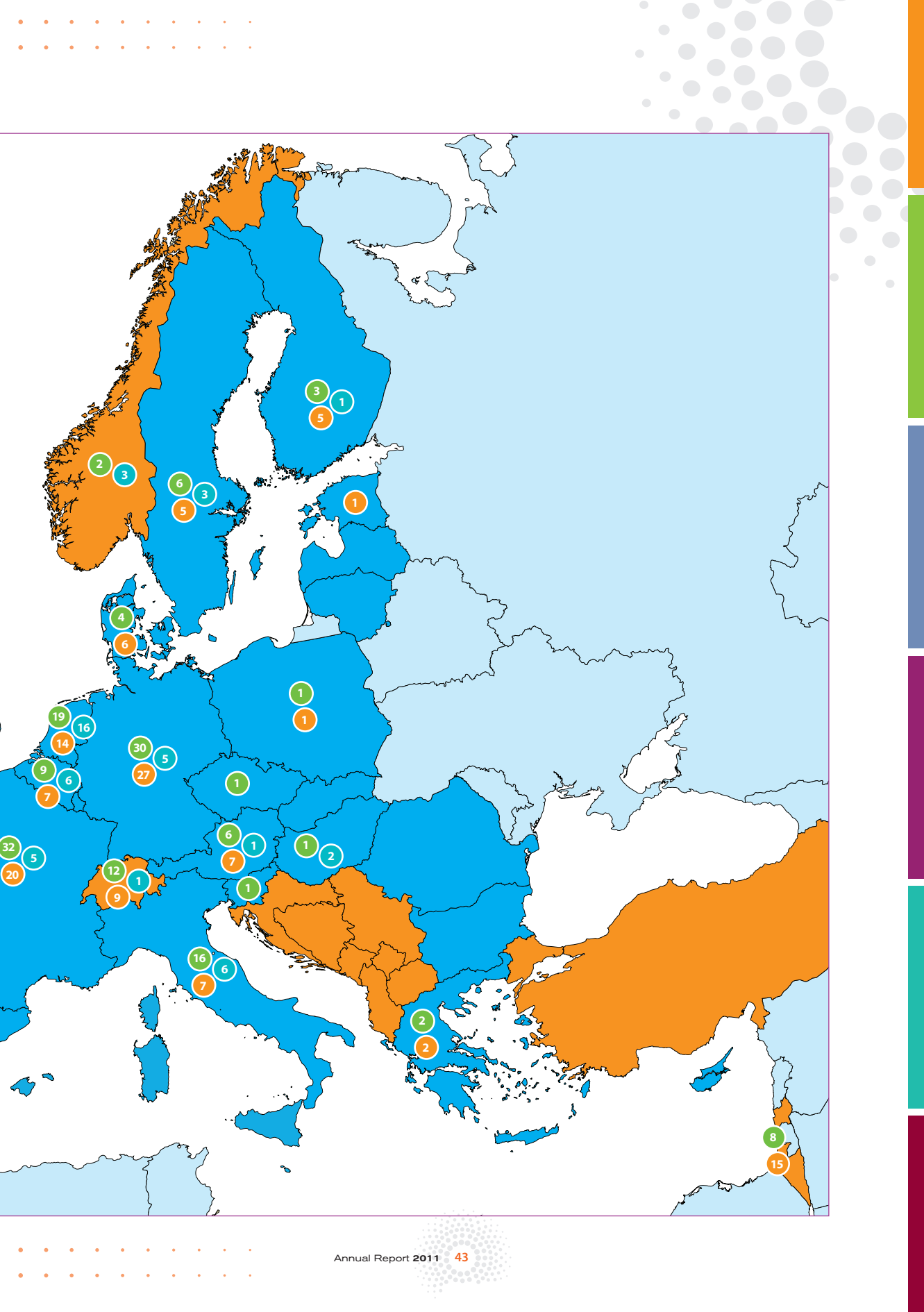
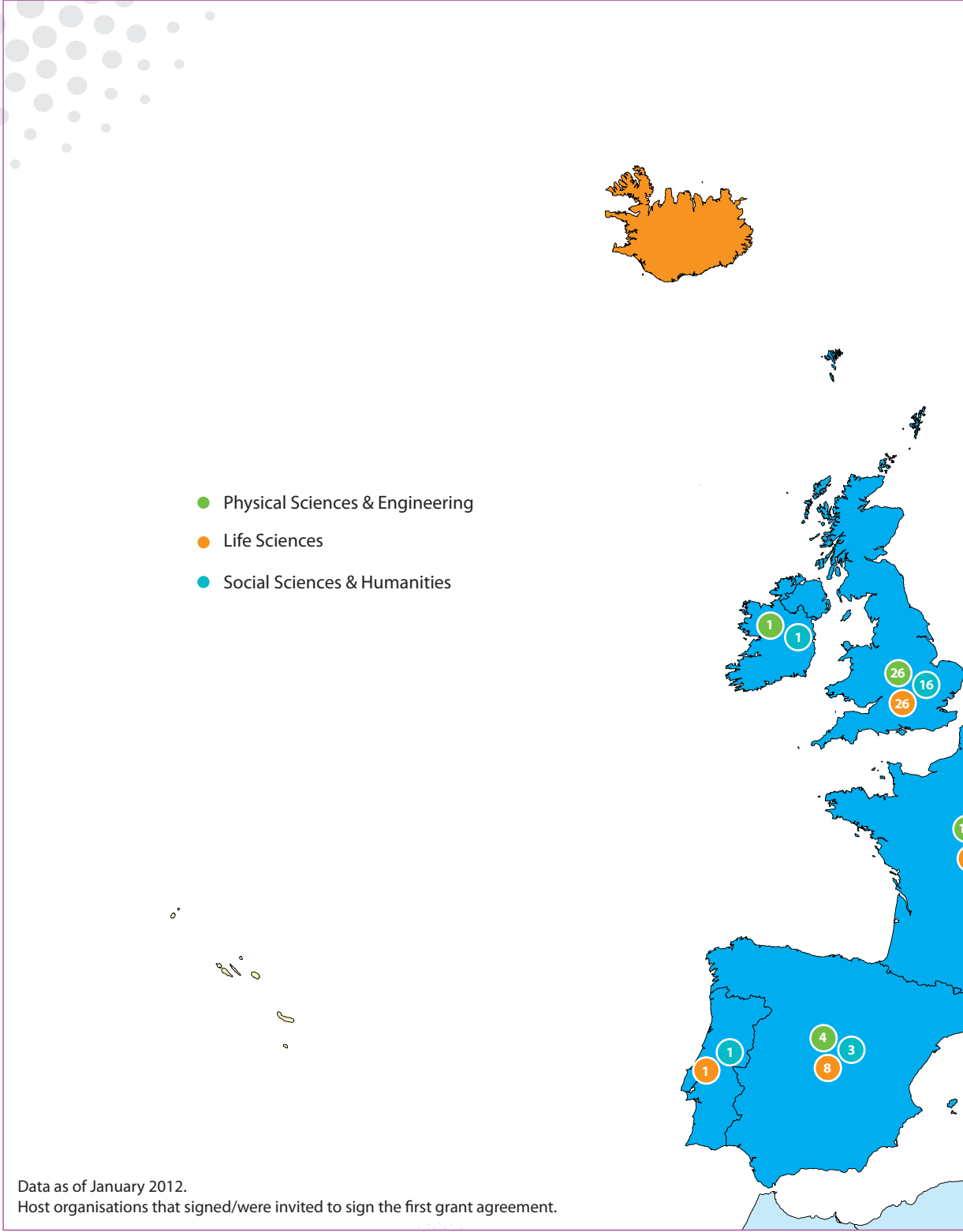
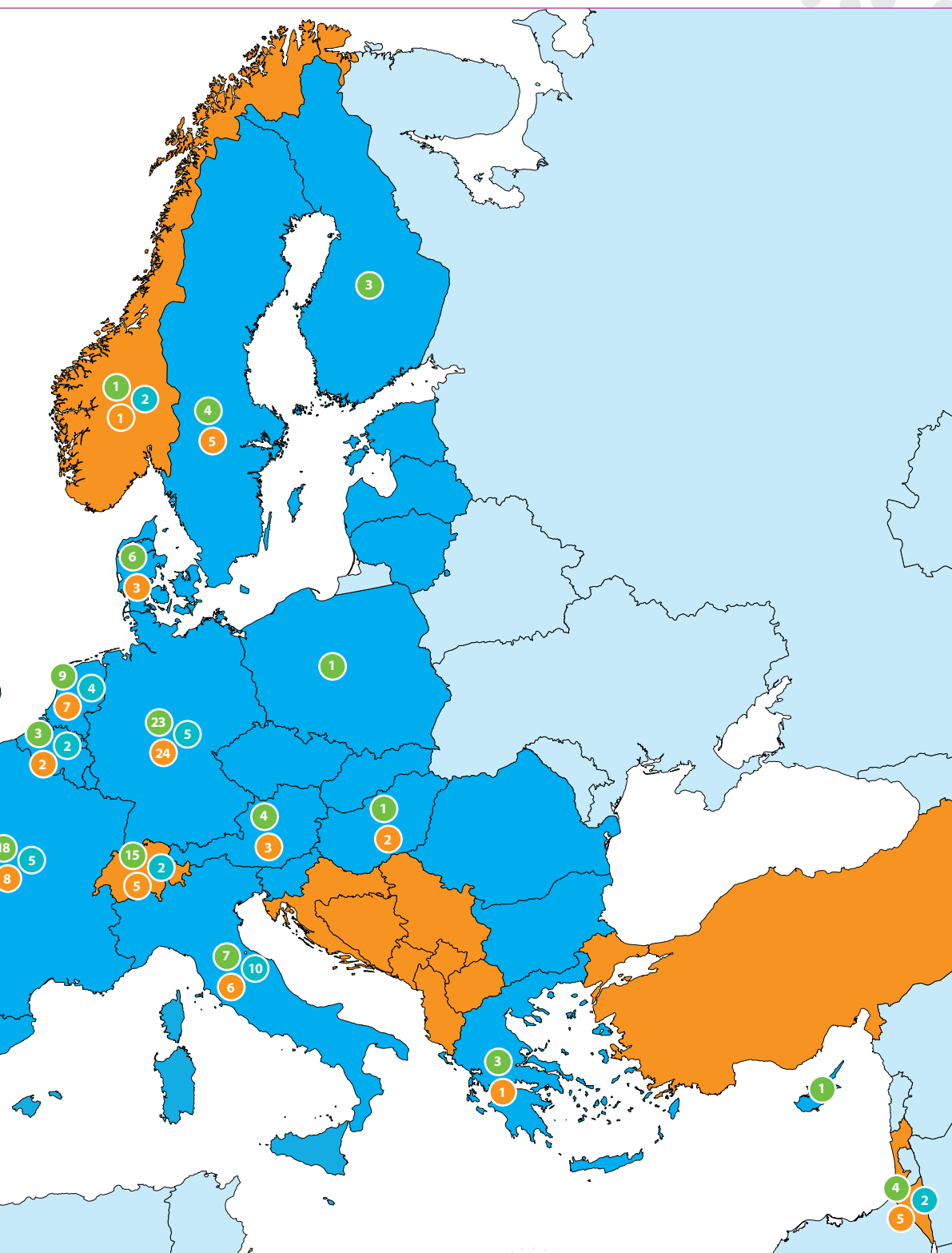


Figure 10 - **ERC Advanced Grant: 2011 Call**
Geographical distribution of grant holders









ERC Scientific Council and Executive Agency

4.1 The ERC Scientific Council

The Scientific Council has the responsibility to establish the ERC's overall scientific strategy, the work programme and, from a scientific perspective, positions on the implementation and management of calls for proposals and evaluation criteria, peer review processes and proposal evaluation. It is made up of representatives of the European scientific community at the highest level, acting in their personal capacity, independently of political or other interests.

Twenty-two members were appointed by the Commission as founding members of the Scientific Council. These founding members were selected on the criteria set out in the Commission Decision of February 2007 (N° 2007/134/EC) establishing the ERC.

This includes the requirement that the Scientific Council's composition would allow it to be independent, combining wisdom and experience with vision and imagination and reflecting the broad disciplinary scope of research. Individual members are chosen on their undisputed reputation as leaders, independent and committed to research.

Changes in membership

As the term of office of the initial Scientific Council was coming to an end in early 2011, an independent ERC Identification Committee, composed of six high-level scientists, was appointed by the European Commission in September 2010 with the task of identifying future ERC Scientific Council members.

The Committee was given a two fold mandate: to identify new members for the staged renewal of approximately one third of the Scientific Council and to maintain a pool of candidates for future replacements of the Scientific Council members thereafter. The scientific community was consulted in this identification process.

The Committee renewed the term of office of twelve of the founding Scientific Council members and selected seven new members. Three other members of the Scientific Council were appointed in 2009 so they were not affected by the 2011 renewal exercise. The names of all twenty-two members of the Scientific Council, included in Annex I of the Commission Decision establishing the ERC⁵ (revised in 2011), can be found on pages 64 and 65 of this report.

⁵ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2011:009:0005:0010:EN:PDF>

Meetings

Due to its specific governance model, the Scientific Council's plenary meetings and regular meetings of its members with ERC stakeholders are prepared with the organisational and administrative support of the Executive Agency. The Agency also provides advice and analysis to facilitate the Scientific Council in the fulfilment of its tasks as described in Annex 1 of the *Ideas* Specific Programme, as well as support the operational activities of its Working Groups (WGs) and permanent committees.

The Scientific Council held regular meetings in 2011 across Europe, usually at the invitation of national authorities. Meeting in different countries which are either EU Member States or Associated Countries is a way of making the ERC Scientific Council's presence felt in different places covered by the *Ideas* Specific Programme. The meetings are also considered an important event both by the national authorities as well as the local scientific and research community. Five Scientific Council plenary sessions were organised during the period between 1 January and 31 December 2011: in February, April and December in Brussels (Belgium), in June in Budapest (Hungary) and in October in Riga (Latvia).

Following the recommendations of the Panel on the Review of the ERC's structures and mechanisms in 2009, the Scientific Council established two Standing Committees: the first providing guidance on conflicts of interest, scientific misconduct and ethical issues and the second dealing with the selection of evaluation panellists. The Executive Agency supported the operational activities of the two committees, which met once and twice respectively in 2011.

In addition to plenary sessions, members of the Scientific Council meet in Working Groups addressing specific issues. In 2011, various meetings of the ERC Working Groups on 'Innovation and Relations with Industry', 'Open Access', 'Internationalisation' and 'Gender Balance' were organised by the Executive Agency. The WGs carry out analysis and contribute to the ERC scientific strategy through proposals to be adopted by the Scientific Council in plenary in the areas covered by their mandates: to examine the ERC's relationship with the industrial/business sector and the impact of ERC-funded research on innovation; to develop an ERC position on open access; to explore suitable mechanisms to boost the participation of non-European researchers, particularly Brazil, Russia, India and China (the BRIC countries), in the ERC schemes; and to ensure that the ERC is at the forefront of best practice with regard to the gender balance of grantees.

A series of working documents containing analysis and key messages on the specific issues dealt with by the Working Groups and by the Standing Committees were prepared by the Executive Agency, in collaboration with members of the groups.

The ERC Board

To further assure its liaison with the European Commission and the Executive Agency, the Chair- and Vice-Chairpersons of the Scientific Council and the Secretary General together with the Director of the Agency meet regularly as the ERC Board. These meetings are also attended by the senior management of the Agency. The Board met in Brussels 10 times in 2011, in particular to prepare or give follow up to meetings of the Scientific Council.

Strategic developments in 2011

A lasting legal and organisational structure for the ERC (Taskforce)

In December 2010 the Commission established an ERC Task Force with the mandate to produce options for a lasting legal and organisational structure of the ERC under the forthcoming “Horizon 2020” (the Framework Programme for Research and Innovation for 2014 – 2020).

A further review had been recommended by the 2009 independent review of the ERC’s structures and mechanisms⁶, and the Competitiveness Council in March 2010⁷.

The Task Force was requested by the Scientific Council in November 2010⁸ and reported in July 2011⁹. Like the 2009 review before it, the Task Force considered that an improved Executive Agency structure is the most appropriate and efficient within the timescale of Horizon 2020. The priority should be stability and the immediate focus should be on sustainability and optimisation of a structure that has largely proven its effectiveness.

The Task Force’s major recommendation was to effect a two-fold change which moves the ERC further into line with international best practice and which will have a tangible effect on its flexibility and efficiency:

- An increase in the ERC’s operational autonomy, through a more extensive and explicit delegation of scientific and administrative responsibilities from the Commission to the ERC Scientific Council and ERC Executive Agency respectively, with stronger roles for the ERC President and Agency Director.
- An improvement of the arrangements for oversight of the scientific, financial and administrative operations of the ERC, relaxing the day-to-day supervision.

In addition, a series of more specific measures were recommended designed to reinforce the ERC’s flexibility, efficiency and autonomy - without compromising its accountability - and to make it easier for researchers to apply for and manage ERC grants:

- a Brussels-based ERC President, devoting at least 80% of his/her time to ERC business, nominated by the Commission after a selection by means of an ad hoc search committee; this would dispense with the need for a separate post of ERC Secretary General;
- compensation of the ERC Scientific Council members and administrative assistance to its Vice-Presidents at their home institutes;
- provision, in the ERC’s legal base, for a co-ordination group bringing together the Scientific Council leadership with the top management of the Agency;
- reinforced presence of the Scientific Council in the Agency Steering Committee;
- a stronger role for the ERCEA Steering Committee, which would be the focus for administrative oversight, in place of the current prescriptive arrangements, and which would supervise the ERC represented by both the ERC President and the Agency Director;
- creation of an independent ERC Foundation (“Friends of the ERC”), which would be able to handle private donations.

⁶ http://erc.europa.eu/sites/default/files/content/pages/pdf/final_report_230709.pdf

⁷ http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/intm/113119.pdf

⁸ http://erc.europa.eu/sites/default/files/press_release/files/erc_scc_statement_2010_looking_ahead_0.pdf

⁹ http://erc.europa.eu/sites/default/files/document/file/erc_taskforce_report_2011.pdf

The Task Force provided other concrete recommendations regarding time-recording methods, audit policy and support to Principal Investigators by their host organisations.

Many of these recommendations have already been implemented or will be implemented through the Horizon 2020 legislation which was proposed by the Commission in November 2011. Taken together they should help to put the ERC on the best possible footing for the future.

The Scientific Council sets out the case for the ERC's role in Horizon 2020 (contribution to Horizon 2020 consultation) ¹⁰

In its Green Paper 'Towards a Common Strategic Framework for EU research and innovation funding' the European Commission proposed major changes to EU research and innovation funding to make participation easier, increase scientific and economic impact and provide better value for money. The changes, to be introduced in the next EU budget after 2013, would bring together the current Framework Programme for research, the Competitiveness and Innovation Programme, and the European Institute of Innovation and Technology. During 2011, by means of an open consultation, the Commission has been seeking the views of all interested individuals and organisations on these proposed changes and on some specific questions set out in the Green Paper.

The Scientific Council participated in the consultation and responded to the invitation to comment with a number of observations on the ERC, its achievements and its future objectives and invited the Commission to reflect on the following considerations and recommendations:

1- The principle of excellence only

The principle of 'excellence only' is key to pursue the ERC's mission of funding the best individual researchers (individual teams) in a truly bottom-up approach that includes all fields of research and scholarship. 'Excellence only' has come to represent the one and only way of conducting an exclusively merit-based competition at EU-level, complementing national funding schemes. The Scientific Council expects the Commission to continue to maintain its own commitment to pursue 'frontier research' in this way and invites the Commission to consider extending this principle also to other areas under the future strategic framework for research and innovation, insisting that for frontier research no other criteria can or should exist.

2- Excellence of the peer review system

The principle of 'excellence only' would remain an empty shell, if it were not implemented in a robust and reliable way. By entrusting the Scientific Council with the responsibility to design, effectively organise, closely monitor and continuously improve the peer review system, the ERC was able to set up a peer review system that compares favourably with the best systems anywhere in the world. Its crucial element has been the Scientific Council's responsibility for selecting the panel members. The Scientific Council invites the Commission to consider setting up similar scientific bodies in charge of designing appropriate peer review procedures and selecting the peers whenever peer review at the highest scientific level is required. Self-nomination of candidates for serving on panels and exclusive reliance on names and keywords in databases may easily jeopardize the best intentions.

3- Simplification

Despite several efforts under way to respond to the continuous demand for simplification and greater flexibility, further steps are clearly needed and expected on the part of various stakeholders and users. In the opinion of the Scientific Council, the almost unanimous rallying cry for 'simplification' has its roots in current EU funding

¹⁰ http://erc.europa.eu/sites/default/files/content/erc_position.pdf

programmes and instruments having to deliver against multiple, overlapping and sometimes contradictory objectives. Instead of having a 'one objective – one appropriate instrument' approach, the tendency is to control the multiple, often unclear and overlapping objectives by one, rigidly exercised set of instruments.

The Scientific Council therefore believes that while more harmonised procedures could help make EU funding more attractive and easy to access for participants, a too rigorous 'one-size-fits-all' approach would be counterproductive. The objectives and implementation modes of autonomous structures such as the ERC should not be too tightly prescribed under the future framework.

4- Under-performing Member States and regions

With a view to redressing the existing and widening gap in research capability, the Scientific Council suggested that the Commission set up, possibly under Cohesion policy, a special channel or instrument that would facilitate the development of strong research programmes that could adequately exploit a significant part of the investment into research infrastructures, owing to the European Regional Development Fund (ERDF) and related programmes.

An increase in the quality of research infrastructures and the quality of their management, combined with merit based individual grants for highly ERC qualified researchers, would greatly enhance their scientific attractiveness. It would thus prepare the host institutions within less-performing regions for a more successful competition for ERC grants.

5- Strengthening research effectiveness as a way to enhance its contribution to innovation

The Scientific Council offered to contribute its views on the provision of further bottom-up support to researchers under the future framework programme or on the training of younger researchers in structured doctoral schools, and, more generally, on the provision for the next generation of researchers of a path to excellence all across Europe. While the respective host institutions and research infrastructures in which these researchers work and pursue their careers differ, there is also a shared understanding that Europe as a whole must provide the 'creative environment' in which research and innovation are to flourish.

The Scientific Council argues for complementarity between encouraging coordination and competition in European Research Area (statement on the ERA Framework) ¹¹

In September 2011, the European Commission launched a public consultation which would help define the research landscape in Europe by identifying the main bottlenecks when creating a genuine single market for knowledge, research and innovation. The Commission will use the insight gained in the consultation to elaborate its proposal for an enhanced European Research Area (ERA) Framework to be published before the end of 2012, with the goal of achieving the European Research Area by 2014, as mandated by the Council in February 2011.

The Scientific Council participated in the consultation, stating its full support for the objective of creating "a European Research Area in which researchers, scientific knowledge and technology circulate freely" and expressing its full agreement with many of the key issues identified such as the fact that in many European countries the public sector still does not offer sufficiently attractive career prospects for researchers, the need to develop and maintain pan-European research infrastructures and the desirability of more open access. However, in its response the Scientific Council also strongly argued for the eventual ERA Framework to strike a balance between the effectiveness of both coordination and competition in achieving its aims. The response emphasised

¹¹ http://erc-staging.esn.eu/sites/default/files/document/file/111130_draft_ERA_Framework_ERC_Scientific_Council.pdf

the benefits from the complementary approach of increasing pan-European competition in a bottom-up mode and underlined that science has always moved forward through a creative tension between competition and collaboration.

In the view of the Scientific Council, large-scale coordination with a mission-orientated approach is best suited to well-defined challenges that need the synchronised deployment of established technologies and to the development and maintenance of research infrastructures. But at a stage when a field is still emerging and researchers are still exploring different approaches, coordination can be sub-optimal as it can encourage premature lock-in of technologies or standards, therefore hindering innovation. At earlier stages, competitive funding in a decentralised and bottom-up manner is likely to be more effective. Coordinated approaches to challenges can also lead to structures built on 'juste-retour' principles and the pre-defined division of labour to existing teams. Such structures might be suited to some industrial ventures but they carry high costs and in the view of the Scientific Council are less likely to be able efficiently to explore all the possible solutions to a less well-defined challenge or converge on the optimal solutions to such a challenge.

Increasing the small fraction of research funding currently allocated through ERA-wide competition could thus significantly raise Europe's performance. The lack of such competition can result in sheltered funding of research teams which would not be competitive at EU level; in similar research priorities (nano, bio, ICT) being funded in each country or region which prevents greater specialisation and the exploration of new ideas and methods; and in insufficient concentration of funding for the best performing teams.

Europe has a tradition of excellence and has the brains and resources to be the world's leading research area with all the benefits that would bring. The Scientific Council is convinced that, by introducing a more open, competitive spirit across European research institutions and among all stakeholders of ERA, and by making Europe a more attractive place to carry out research, a decisive step could be taken towards achieving the objectives of the 2020 Innovation Union.

Synergy Grant

The fundamental activity of the ERC is to provide excellent researchers with all the means necessary, including the right intellectual and material environments, to push forward the frontiers of knowledge.

Major advances in science can emerge from many types of settings. In recent years, small research groups of Principal Investigators and their teams, frequently organised around interdisciplinary problems and shared facilities, have emerged as an increasingly productive unit of research.

Given that researchers have multiple funding sources, with different objectives, requirements and timescales it can be difficult for researchers to be able to collaborate effectively even with colleagues in the same institution. The Scientific Council therefore decided to extend its portfolio of instruments to cover such small group scale research efforts with a pilot first Synergy call published in October 2011 (SyG 2012).

The Synergy Grant is for groups of 2 – 4 Principal Investigators (PI) who are strongly committed to a genuine joint project. As with the other ERC grants the Synergy Grant is: evaluated on the sole criterion of excellence; open to independent PIs regardless of their career stage; and 'bottom-up', with the research priorities and the configuration of the group determined by the PIs alone.

The Scientific Council will assess the Synergy Grant pilot over two calls (SyG 2012 and SyG 2013) before deciding whether to cancel, retain or strengthen this type of funding in future.

4.2 The ERC Secretary General



Prof Donald Dingwell

The ERC Secretary General has a key role in ensuring the integrated operation of the ERC, based on the strategy and programme of activities prepared by the ERC Scientific Council. He is a member of the ERC Board, working together with the Chair and two Vice-Chairs of the Scientific Council as well as with the Director of the ERC Executive Agency to oversee the implementation of the ERC strategy and work programme established by the Scientific Council.

As noted in last year's Annual Report, the proposed merger of the two positions of ERC Executive Agency Director and ERC Secretary General recommended by the external review in 2009, and intended as an interim solution in the larger context of addressing the governance issue, was not taken up and the two functions will continue to co-exist in the present framework. Professor Mas-Colell, selected ERC Secretary General for two and a half years on 1 July 2009, stepped down from this position on 31 August 2010 to return to his career as professor of Economics at Universitat Pompeu Fabra in Barcelona and the procedure for the selection of a new Secretary General started shortly afterwards.

In line with the *Ideas* Specific Programme, the recruitment process for a new Secretary General was conducted autonomously by the Scientific Council and based rigorously on relevant experience and scientific qualifications. Prof Donald Dingwell was selected by the members of the Scientific Council and took office on 1 September 2011. Prof Dingwell is a prominent geoscientist, Professor at Ludwig Maximilian University, Munich (Germany) and currently the President of the European Geoscience Union.

4.3 The ERC Executive Agency

The Executive Agency implements the Seventh Framework Programme's *Ideas* Specific Programme according to the strategies and methodologies established by the independent ERC Scientific Council.

The Executive Agency operates on the basis of the powers delegated to it by the European Commission, which has the ultimate political responsibility for the implementation of the *Ideas* Specific Programme.

Structure

The organisational structure of the Agency follows its operational and horizontal objectives. It consists of two operational departments (five Units) and one Resources and Support Department (three Units). The Accounting Officer, the Internal Audit Office, the Audit Management and Implementation Unit, the Communication Unit as well as the Support to the Scientific Council Unit report directly to the Director (see page 70).

For the operational budget of the *Ideas* Programme a Unit of payments and controls was established with the centralised responsibility for the financial management of the grant agreements (i.e. the operational budget appropriations).

Staff and Recruitment

The 2011 operating budget provided for an establishment plan of 100 temporary agents (TA) and a budget for 253 contract staff (CA) and 7 Seconded National Experts (SNEs), adding up to a total of 360 agents.

At the end of December 2011, the Agency employed a total of 350 agents: 97 temporary agents, 245 contract agents and 8 Seconded National Experts.

Statistics of December 2011 show that the Agency employs approximately 36% men and 64% women. As regards the gender balance of highly specialised staff (Temporary Agents and Contract Agents Function Group IV), 54% of the posts are occupied by women. At the end of 2011 the ERC Executive Agency employed nationals from 24 EU Member States.

Figure 11 - Staff composition by post category

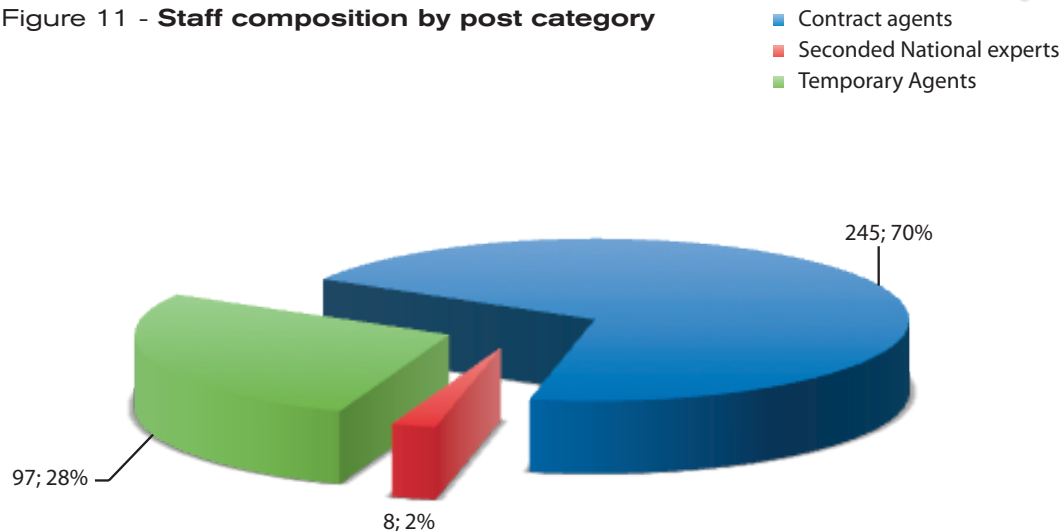


Figure 12 - Staff composition by nationality

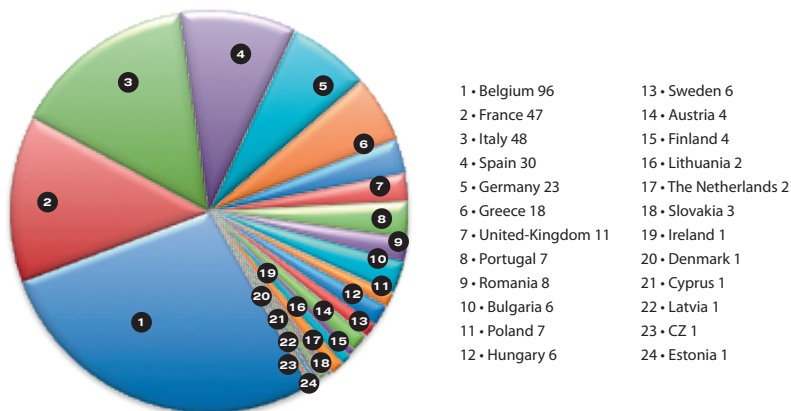
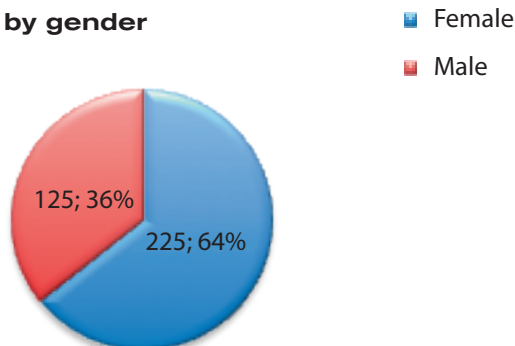


Figure 13 - Staff composition by gender



4.4 Communication

During the course of 2011, on the basis of the annual communication strategy, the ERC intensified its awareness raising activities about its funding opportunities, both in Europe and outside, while the visibility of ERC's funded projects was raised among the general public and the media.

Thanks to the efforts of past years, and to the success of its funding schemes, the ERC's visibility has considerably increased, as witnessed by a growing number of articles in the media, invitations to events or visits to the ERC website, as well as by a growing participation in ERC calls.

The **new ERC calls** were widely publicised, via the revamped website and news alerts, but also by coordinated efforts with Commission's Directorate General for Research and Innovation at the occasion of the campaign on the new FP7 calls in July 2011. ERC representatives helped with promoting these calls around Europe and explaining the opportunities that the ERC can offer.

To raise awareness about both its existing and new funding opportunities (such as the Synergy Grants) at a global level, the ERC ensured its presence and involvement at major international research conferences and exhibitions, as well as career fairs and workshops.

In Europe, the ERC took part in the annual meetings of the European Molecular Biology Organisation (EMBO) in Vienna and of the European Sociological Association in Geneva (ESA), the Congress of the Federation of European Biochemical Societies (FEBS) in Turin, Nature Jobs Career Fair in London, the meeting of the European Universities Public Relations and Information Officers (EUPRIO) in Prague, the Falling Walls Conference in Berlin, as well as the EU Innovation Convention held in Brussels.

Special efforts were deployed in countries with low participation in ERC schemes. In June, at the occasion of the Hungarian Presidency of the European Union, the ERC organised in Budapest, jointly with the Hungarian Academy of Sciences, a major conference on 'Promoting Excellence in Research in Europe'. The spotlight was on top researchers who have been successful in obtaining highly competitive ERC grants to develop their projects. A selection of ERC grant holders gave their testimonials, including 2010 Nobel Prize winner Konstantin Novoselov. This was also a successful press event with excellent press coverage mainly in the national media. In Riga (Latvia), a public presentation on the ERC was organised in cooperation with the national Academy of Sciences. In Poland, a series of awareness raising workshops were organised by the Polish National and Regional Contact Points.



June 2011: ERC Conference "Promoting Excellence in Research in Europe" organised under the Hungarian Presidency of the European Union 2011, Budapest, Hungary



June 2011: ERC awareness raising visit to Renmin University, China



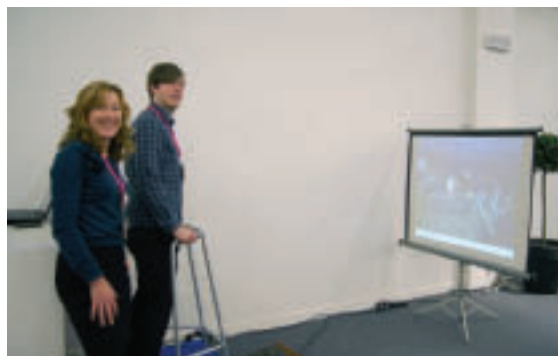
January 2011: Visit to the Indian Institute of Technology, Chennai, India

Outside Europe, the ERC has again been present in a few priority countries, namely the US (MIT-European Career, "AAAS", Annual meeting of the Society for Neuroscience, American Association for Cancer Research, Bio International Conference, American Geophysical Union Meeting), China (visit to research organisations and universities in Beijing), India (Indian Science Congress in Chennai and participation in an EU campaign organised by the EU Delegation throughout the country) and Brazil (Sao Paulo and Brasilia) in September at the occasion of the 60th anniversary of the Research Foundation Agency of Brazil (CNPq).

Scientific Council members and Executive Agency's staff have contributed to many of these outreach activities and have attended other scientific congresses held in the EU and other parts of the world (such as the Annual Meeting of the American Society for Cell Biology in Denver, US, the American Anthropological Association Annual Conference in Montréal, Canada, and the Material Research Society (MRS) Fall meeting in Warsaw, Poland).

The ERC caught the attention of the **media** in Europe and worldwide throughout the year, both as an organisation and through its funded projects and its grant holders. Press activities resulted in a good number of articles in both the scientific and more general press (over 1900 mentions) and in many press releases and updates disseminated to the media. Numerous interviews with the ERC President, Secretary General or Scientific Council members have been published, also in major daily newspapers.

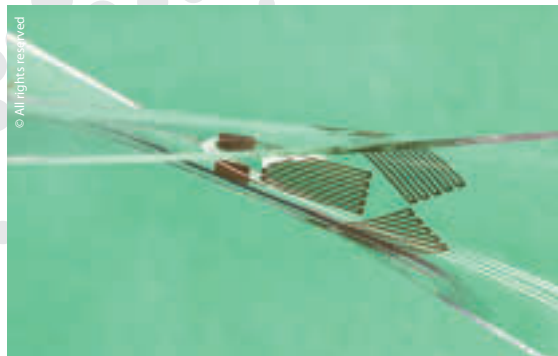
Several other press activities were organised, such as at the AAAS annual meeting in Washington with the ERC President and grantees, but also in Brussels in the context of the conclusions of the Task Force on the ERC's future.



December 2011: Dr Cathy Craig, ERC Starting Gantee 2007, at the Innovation Convention in Brussels, Belgium



December 2011: Commissioner for Research & Innovation, Máire Geoghegan-Quinn visits the stand of Dr Davide Iannuzzi, ERC Starting Gantee 2007, at the Innovation Convention in Brussels, Belgium



Skin-Like Electronics (Stéphanie P. Lacour)



Prof Anne L'Huillier, ERC Advanced Grantee 2008, in her research laboratory, at the University of Lund in Sweden

The Executive Agency's Dissemination Working Group set up in 2010, continued throughout the year monitoring regularly interesting projects and good communicators among the grant holders. Around twenty articles on success stories were drafted and published on the ERC website or in written publications. Some success stories turned out to have a great media impact such as the 'Castles in the desert – Satellites reveal lost cities of Libya' published in cooperation with Leicester University in November 2011 or the update of 'The new generation of microscopic robots' done in partnership with the Praha University of Pragues.

Six 'Special Features' were published to follow the news on the occasion of Alzheimer's day, the earthquake in Japan, a volcano eruption, the International women's day, Breast Cancer Awareness Month and the UN Climate Change Conference in Durban.

In order to reach out through all communication channels, the ERC also produced seven video clips including one highlighting the portrait of Prof Anne L'Huillier, a French ERC grantee who was awarded the L'Oreal-UNESCO prize for Women in Science.

The National Contact Points (NCPs), based all over Europe and serving as information multipliers to potential applicants, were continuously kept informed of the ERC developments and of its calls.

Finally, a completely new **website** was launched in September, with a new look-and-feel, a new layout, clearer and more user-friendly navigation, added functionalities and with a more dynamic approach, and a quarterly **electronic newsletter** called 'ideas' was published as of March, to offer more in-depth information and presentations of ERC achievements, projects, grantees and partners.



European Research Council Home page



European Research Council
Quarterly Newsletter



European Research Council page related to Success Stories







Outlook for 2012

The coming year will see intense negotiations on the EU's overall budget (*Multi-Annual Financial Framework*) for 2014 - 2020 and on the Commission's proposals for funding research and innovation from 2014 – 2020, *Horizon 2020* (see above). The Commission's proposal for Horizon 2020 will be adopted by the European Parliament and Council using the 'ordinary legislative procedure' (formerly known as 'co-decision') . The process needs to be completed before the end of 2013.

In terms of the ERC's activities, important changes will be introduced to the Starting Grant in 2012. Because of the constantly increasing demand for the Starting Grant competitions and consequent very high workloads on the Starting Grant panels, the Scientific Council has decided that the 'starters' and 'consolidators' streams will become two separate calls in 2012 (for grants to start in 2013) with a further reinforced budget.

The ERC Identification Committee will meet throughout the spring of 2012 following a consultation launched in December 2011. ERC Scientific Council members are appointed by the European Commission following an independent and transparent procedure for their identification, including a consultation of the scientific community. They have a four-year term of office, renewable once. To ensure continuity, a staged renewal of Scientific Council membership involves the appointment of new members corresponding to approximately one third of the total membership every two years. The current identification exercise will identify new members to come into office in early 2013. The Committee's report will be sent to the European Parliament and to the Council of the European Union. The appointments of the new Scientific Council members are expected in autumn 2012.





Annexes

Members of the Scientific Council in 2011



Prof Helga NOWOTNY

- President, European Research Council
- Professor emer. Social Studies of Science, ETH, Zurich
- Awards (among other): John Desmond Bernal Prize
- Foreign Member Royal Swedish Academy of Sciences
- Main research fields: Social Sciences



Prof Pavel EXNER

- ERC Vice-President
- Scientific Director, Doppler Inst., Prague
- President, International Association Mathematical Physics
- JINR prize in Theoretical Physics
- Main research fields: Mathematical Physics, Operator Theory, Quantum Systems



Prof Carl-Henrik HELDIN

- ERC Vice-President
- Director Ludwig Institute for Cancer Research; Professor Molecular Cell Biology, Uppsala Uni.
- K. Fernströms Large Medical Prize 1993; Pezcoller AACR Award in Cancer 2002
- Main research fields: Cell Biology, Cancer



Dr Claudio BORDIGNON

- Full Professor of Hematology, Vita-Salute San Raffaele Uni., Milan
- Chairman & CEO MolMed S.p.A., Milan
- Main research fields: Gene Therapy, Stem Cells Transplantation, Molecular Oncology



Prof Nicholas CANNY

- Professor emer. History, Galway, Ireland
- Former President Royal Irish Academy; Fellow British Academy; Member American Philosophical Society;
- Member Academia Europaea
- Irish Historical Research Prize 1976 and 2001
- Main research fields: Early Modern History, Atlantic History



Prof Dr Sierd CLOETINGH

- Head Tectonics Group, Dept. of Earth Sciences, Faculty of Geosciences, Utrecht Uni.
- President International Lithosphere Programme; Vice-President Academia Europaea
- Medal Stephan Mueller, European Geosciences Union & Leopold von Buch, German Geological Society; Chevalier de la Legion d'Honneur 2004
- Main research fields: Earth sciences, Tectonics



Prof Mathias DEWATRIPONT

- Executive Director of the National Bank of Belgium; Professor of Economics, ECARES, Université Libre de Bruxelles; President of the European Economic Association 2005
- Francqui Prize 1998; Jahnsson Medal 2003
- Main research fields: Economics, Science Policy



Prof Tomasz DIETL

- Head of Laboratory for Cryogenic and Spintronic Research, Inst. of Physics, Uni. Warsaw
- Polish Academy of Sciences, Ordinary Professor at the Inst. Theoretical of Physics
- Agilent Technologies Europhysics Prize (2005); Foundation for Polish Science Prize (2006)
- Main research fields: Condensed Matter Physics, Spintronics, Semiconductors, Magnetic Materials



Prof Daniel DOLEV

- Professor of Computer Science, Hebrew Uni., Israel
- Chairman Authority for Computation, Communication and Information
- Named "Highly Cited Scientist", ISI ACM Fellow; Dijkstra Award
- Main research fields: Computer algorithms



Prof Carlos DUARTE

- Research Professor Spanish Research Council (CSIC)
- Scientific Director International Laboratory for Global Change
- Spanish National Science Award 2007, Spain's King Jaime I Science Award 2009
- Main research fields: Marine ecology, Oceanography, Limnology, Global Change



Dr Daniel ESTEVE

- Research Director, CEA Saclay Agilent
- Europhysics Prize 2004
- Member Académie des Sciences; Founder Quantronics
- Main research fields: Quantum Mechanics, Quantum Electronics, Mesoscopic Physics, Nanosciences



Prof Hans-Joachim FREUND

- Fritz-Haber-Institute, MPG, Chemical Physics, Berlin
- Leibniz Award 1995; Somorjai Award ACS 2007; Centenary Award RSC 2006-2007; Karl Ziegler Award 2011
- Member Academia Europaea, Leopoldina, Academia Brasileira de Ciencias
- Main research fields: Physical Surface Chemistry

**Dr Tim HUNT**

- Cancer Research UK (retired)
- Nobel Prize in Physiology or Medicine 2001 with Lee Hartwell and Paul Nurse
- Main research fields: Molecular Biology, Control of Cell Division

**Prof Norbert KROÓ**

- Research Professor, Special Advisor, Hungarian Academy of Sciences
- Laureate of the Alexander von Humboldt Research Prize, DE; The Wallis E. Lamb Award for Laser Physics & Quantum Electronics (US); Honorary Member of the European Physical Society
- Main research fields: Solid-state Physics, Optics, Neutron Physics

**Prof Maria Teresa LAGO**

- Full Professor, School of Sciences, Porto Uni.
- Member Council ESO; Member Academia Europea
- Henri Chrétien Award 1985
- Main research fields: Astrophysics

**Prof Henrietta MOORE**

- William Wyse Chair of Social Anthropology, Uni. Cambridge
- Director, Culture & Globalisation Programme Social & Cultural Theory; Major Research Fellow: Leverhulme Trust; British Academy, Royal Society of Arts, Royal Anthropological Institute
- Main research fields: Epistemology, Anthropology, Gender, Africa, Development & Social Enterprise

**Prof Christiane NÜSSLEIN-VOLHARD**

- Director, Max-Planck-Institut für Entwicklungsbiologie Abteilung III (Genetik)
- Nobel Prize for Medicine 1995; Albert Lasker Award for Basic Medical Research 1991
- Foreign Member Royal Society, London, UK; Member German Academie Leopoldina
- Main research fields: Developmental Biology, Genetics

**Prof Alain PEYRAUBE**

- Directeur de recherche emer., CNRS
- Professor, Ecole des Hautes Etudes en Sciences Sociales
- Stanislas Julien Award 1989
- Honorary Professor, Uni.Peking; Honorary member Chinese Academy of Social Sciences; Member Academia Europaea, Corresponding Member Academia Sinica, Taiwan
- Main research fields: Linguistic, Chinese Studies

**Dr Jens R. ROSTRUP-NIELSEN**

- Senior Associate, Haldor Topsoe A/S
- Affiliate Professor KTH, Stockholm
- Main research fields: Chemical Engineering, Catalysis, Materials Research, Energy Technologies.

**Prof Mart SAARMA**

- Academy Professor and Director Centre of Excellence Biotechnology Inst., Helsinki
- Nordic Science Prize 2008
- Main research fields: Neurosciences, Biotechnology

**Prof Anna TRAMONTANO**

- Chair Professor of Biochemistry, "Sapienza" Uni., Rome
- Tartufari Prize, Accademia dei Lincei; KAUST Global Research Partnership Award, Marotta Prize of the National Academy of Science
- Main research fields: Biophysics and Computational Biology

**Prof Isabelle VERNOS**

- Research Professor ICREA (Institutió Catalana de Recerca i Estudis Avançats), Centre de Regulació Genòmica, Barcelona
- Associated professor Uni. Pompeu Fabra, Barcelona; Member EMBO and ASCB
- Main research fields: Cell Biology

Panel Chairs of the ERC Peer Review Panels ERC Starting Grant Panels 2011

Life Sciences

- LS1** Molecular and structural biology and biochemistry
Panel Chair: Reinhard Jahn
- LS2** Genetics, genomics, bioinformatics and systems biology
Panel Chair: Marja Makarow
- LS3** Cellular and developmental biology
Panel Chair: Christer Betsholtz
- LS4** Physiology, pathophysiology and endocrinology
Panel Chair: Ole Petersen
- LS5** Neurosciences and neural disorders
Panel Chair: Andreas Kleinschmidt
- LS6** Immunity and infection
Panel Chair: Maria Grazia Roncarolo
- LS7** Diagnostic tools, therapies and public health
Panel Chair: Hans Bräuner-Osborne
- LS8** Evolutionary, population and environmental biology
Panel Chair: Lars Chittka
- LS9** Applied life sciences and biotechnology
Panel Chair: Francisco Tomás-Barberán

Social Sciences and Humanities

- SH1** Individuals, institutions and markets
Panel Chair: Jordi Galí
- SH2** Institutions, values, beliefs and behaviour
Panel Chair: Ronald Rogowski
- SH3** Environment and society
Panel Chair: Mark Rounsevell
- SH4** The human mind and its complexity
Panel Chair: Luciano Fadiga
- SH5** Cultures and cultural production
Panel Chair: Simon Goldhill
- SH6** The study of the human past
Panel Chair: Jane Burbank



Physical Science and Engineering

PE1 Mathematical foundations

Panel Chair: Janusz Grabowski

PE2 Fundamental constituents of matter

Panel Chair: Sune Svanberg

PE3 Condensed matter in physics

Panel Chair: Yvan Bruynseraede

PE4 Physical and analytical chemical sciences

Panel Chair: Philippe Sautet

PE5 Material and synthesis

Panel Chair: Jeffrey Alan Hubbell

PE6 Computer science and informatics

Panel Chair: Stefan Jähnichen

PE7 Systems and communication engineering

Panel Chair: Palle Jeppesen

PE8 Products and process engineering

Panel Chair: Guy Marin

PE9 Universe science

Panel Chair: Georges Meylan

PE10 Earth system science

Panel Chair: Daniel Conley

The list of all Panel Members is available at:

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Panel Chairs of the ERC Peer Review Panels ERC Advanced Grants Panels 2011

Life Sciences

- LS1** Molecular and structural biology and biochemistry
Panel Chair: Joel Sussman
- LS2** Genetics, genomics, bioinformatics and systems biology
Panel Chair: Peer Bork
- LS3** Cellular and developmental biology
Panel Chair: Anne Ridley
- LS4** Physiology, pathophysiology and endocrinology
Panel Chair: Johan Henri Louise Auwerx
- LS5** Neurosciences and neural disorders
Panel Chair: Roger A. Barker
- LS6** Immunity and infection
Panel Chair: Luke O'Neill
- LS7** Diagnostic tools, therapies and public health
Panel Chair: Dimitrios Boumpas
- LS8** Evolutionary, population and environmental biology
Panel Chair: Maurice W. Sabelis
- LS9** Applied life sciences and biotechnology
Panel Chair: Regine Kahmann

Social Sciences and Humanities

- SH1** Individuals, institutions and markets
Panel Chair: Bengt Holmström
- SH2** Institutions, values, beliefs and behaviour
Panel Chair: Arne Kalleberg
- SH3** Environment and society
Panel Chair: Susan Fainstein
- SH4** The human mind and its complexity
Panel Chair: Michel Denis
- SH5** Cultures and cultural production
Panel Chair: Erika Fischer-Lichte
- SH6** The study of the human past
Panel Chair: Alain Dewerpe



Physical Science and engineering

PE1 Mathematical foundations

Panel Chair: Rolf Jeltsch

PE2 Fundamental constituents of matter

Panel Chair: Elisabeth Giacobino

PE3 Condensed matter physics

Panel Chair: Laurens W. Molenkamp

PE4 Physical and analytical chemical sciences

Panel Chair: Claudine Noguera

PE5 Materials and synthesis

Panel Chair: Heinz-Dieter Fenske

PE6 Computer science and informatics

Panel Chair: Carlo Ghezzi

PE7 Systems and communication engineering

Panel Chair: Alessandro De Luca

PE8 Products and process engineering

Panel Chair: Viggo Tvergaard

PE9 Universe sciences

Panel Chair: Rolf-Peter Kudritzki

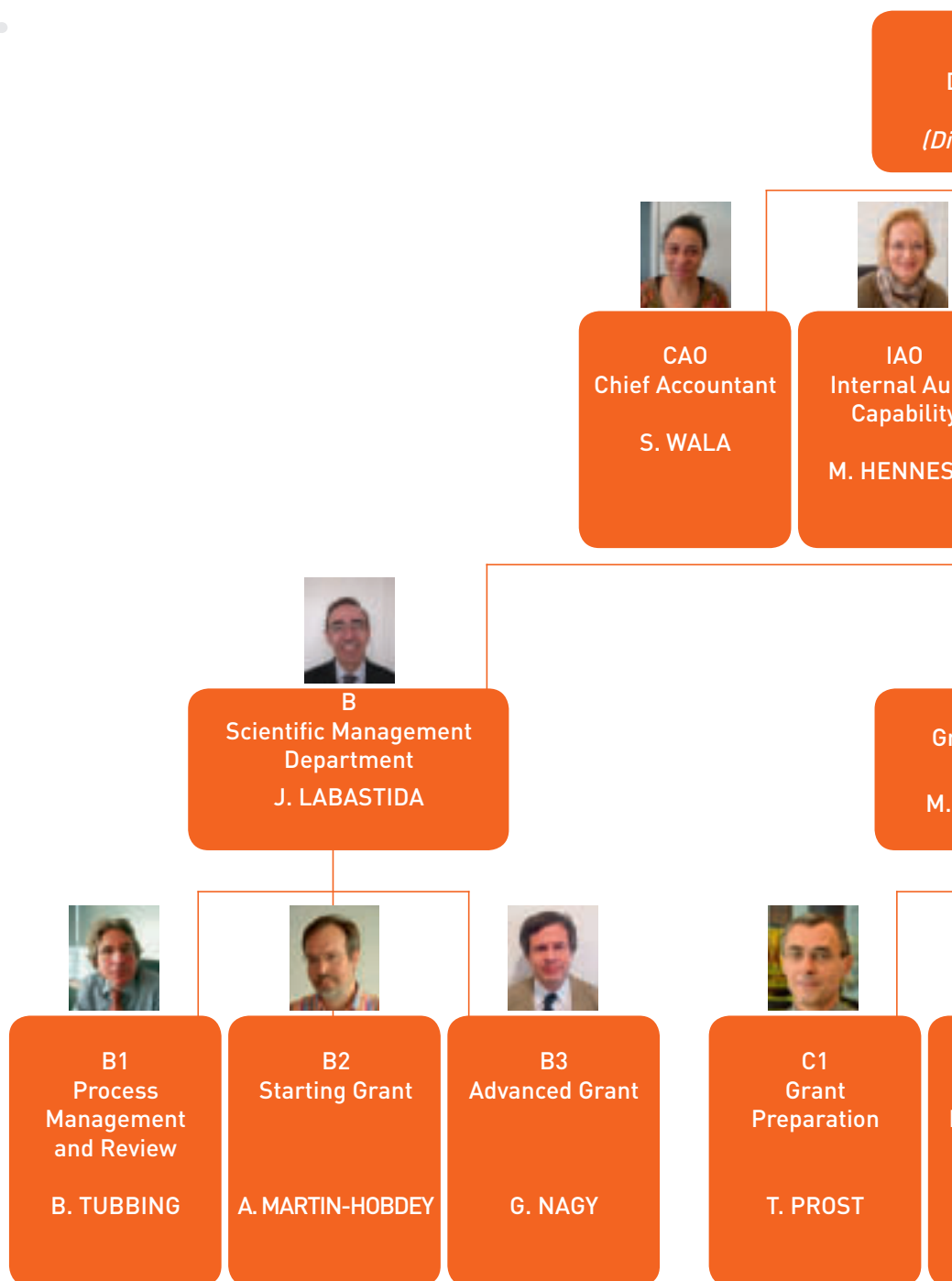
PE10 Earth system science

Panel Chair: Jean Jouzel

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Agency structure





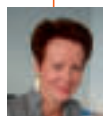
DIR
Director's Office
P. AMOR
Director Ad Interim



A1
Support to the
Scientific Council
T. PAPAZOGLOU



A2
Communication
M. GAUDINA



C
Grant Management
Department
MAY *(Acting HoD)*



C2
Grant
Implementation
M. MAY



C3
Audit
Management and
Implementation
J. BRODERSEN



D1
IT Tools
Development and
Management
M. VANBIERVLIT



D
Resources & Support
Department
Y. PATERNOSTER



D2
Human
Resources,
Infrastructure,
and Document
Management
C. LENARDUZZI



D3
Programming,
Monitoring, Legal
Matters and Risk
Management
M. OLIVAN AVILES

D0
Administrative
Budget

Organisations hosting at least 15 ERC principal investigators* by funding scheme

Host Institution	Starting Grants	Advanced Grants	Total
National Centre for Scientific Research (CNRS)	86	38	124
University of Cambridge	44	32	76
University of Oxford	38	34	72
Max Planck Society	33	29	62
Swiss Federal Institute of Technology Lausanne (EPFL)	27	25	52
Hebrew University of Jerusalem	28	17	45
Swiss Federal Institute of Technology Zurich (ETH Zurich)	14	29	43
Imperial College	22	20	42
University College London	23	19	42
Weizmann Institute	21	18	39
French Alternative Energies and Atomic Energy Commission	23	6	29
National Institute of Health and Medical Research (Inserm)	18	10	28
University of Leuven	19	7	26
University of Bristol	9	15	24
University of Munich	8	15	23
Leiden University	12	11	23
University of Edinburgh	11	12	23
University of Zurich	10	13	23
University of Amsterdam	13	8	21
University of Helsinki	12	9	21
Karolinska Institute	11	9	20
Nat. Inst. for Res. in Computer Science and Automatic Control	12	8	20
Spanish National Research Council (CSIC)	14	6	20
Technion - Israel Institute of Technology	17	3	20
Free University of Amsterdam	13	6	19
Radboud University Nijmegen	13	6	19
University of Groningen	16	2	18
Aarhus University	9	9	18
Medical Research Council UK	8	9	17
Pasteur Institute	11	6	17
Utrecht University	11	6	17
University of Geneva	6	11	17
University of Heidelberg	10	7	17
University of Vienna	8	9	17
Lund University	8	8	16
University of Copenhagen	9	7	16
Technical University of Munich	8	8	16
Tel Aviv University	6	9	15

* Basis: first eight calls, organisations with whom the initial grant agreement was signed. Data as of February 2012







European Commission

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Helga Nowotny



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